

The Village Church of Pargny-Filain, Department de l'Aisne, France

By *H. Cunningham, Architect*

With Drawings by the Author

IN accordance with the laws that have been made (and remade) for this very special case of the Reconstruction of the Devastated Regions in France, the architect has the following problems to solve:

1. GENERAL OUTLINE OF THE RECONSTRUCTION PROBLEM IN FRANCE *a.* Every construction of whatever nature, that existed before the war, must be measured (if any traces exist).

b. A schematic plan, section, and elevation must be drawn.

c. An estimate of the value (1914) must be made.

d. An estimate of the cost of reconstruction (1920-21) must be made. This latter is based on the 1914 value multiplied by the coefficient for to-day, which varies from 3 to 7, according to the branch of the work and the region.

In the case of *a*, where the foundations exist still, it is comparatively easy to measure them sufficiently accurately and to establish thereon (with the aid of indications given by the proprietor) the condition of the property before the war. Where the foundations do not any longer exist, it is quite another problem. Sometimes one finds the plans, sections, and façades in the files of the insurance company, sometimes in the files of the local notary-public (in the event that he had time to get out with his files before the Boche got in with his burning habits).

In the cases of *b*, *c*, and *d*, the matter of plans, estimates, etc., for ordinary buildings is reduced to a sort of system.

In the case of the churches, the architect is required to "dress" his plans and estimates much more in detail than for ordinary buildings. This because of the fact that there was carving (often very lovely), furniture of very special sort, wood panelling sometimes, ornaments of all sorts, etc. In order to complete his work the architect is often forced to find out some one—the priest, the sexton, a "chantre," and so on—who knew his

church well, and can describe the condition of the furnishings, and so on, of pre-war days.

In the writer's mind there is nothing more charming in the realm of architecture than the village churches of France (excepting, perhaps, the village churches of England, and that is "encore très discutable").

In the special case herewith presented, the foundations exist still *in part*—two photographs, an exterior and an interior, were found—and an "ex-chantre" was able to supply—with that native natural knowledge of architecture which comes of *living with it* and which one finds among French peasants everywhere—the details which lacked. Thus the restoration of the village church of Pargny-Filain herewith presented is accurate in detail, and absolutely so in principle.

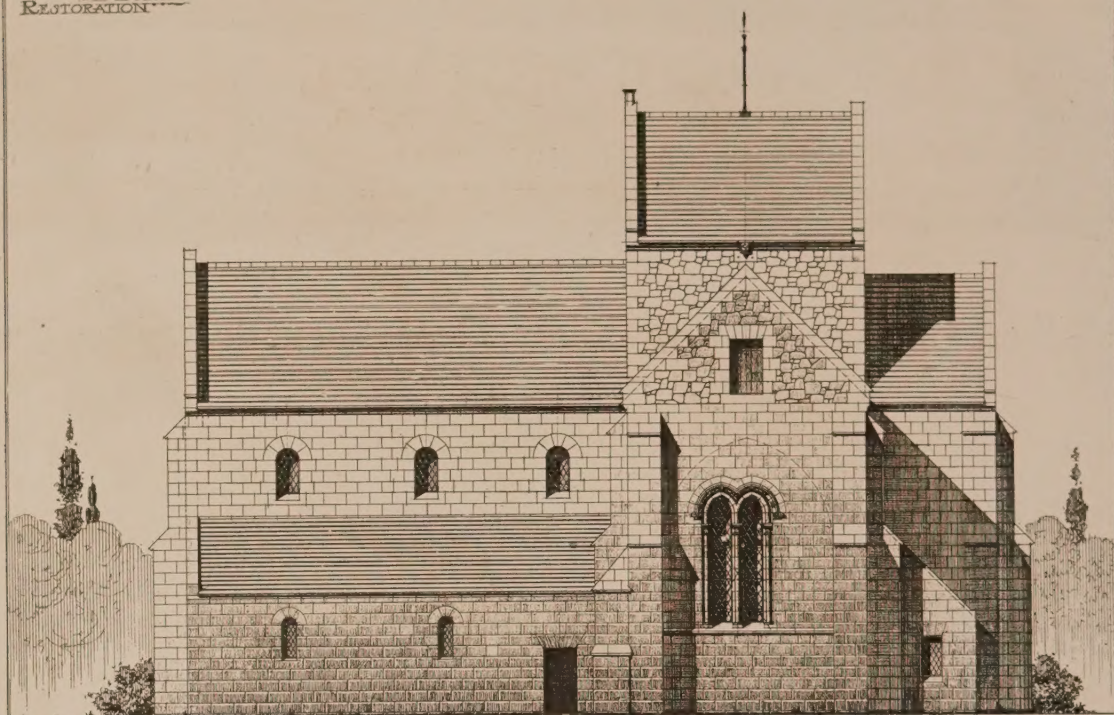
The little village of Pargny-Filain is half-way down in the valley on the "other side" of the Chemin des Dames.

(Continued on page 262.)



XISC.A. B.450. PARGNY FILAIN et Nord. 22-9-17. H²⁵⁰⁰. C 65-48

VILLAGE CHURCH - PARGNY-FILAIN - Aisne - XIIth CENTURY
RESTORATION



SIDE ELEVATION

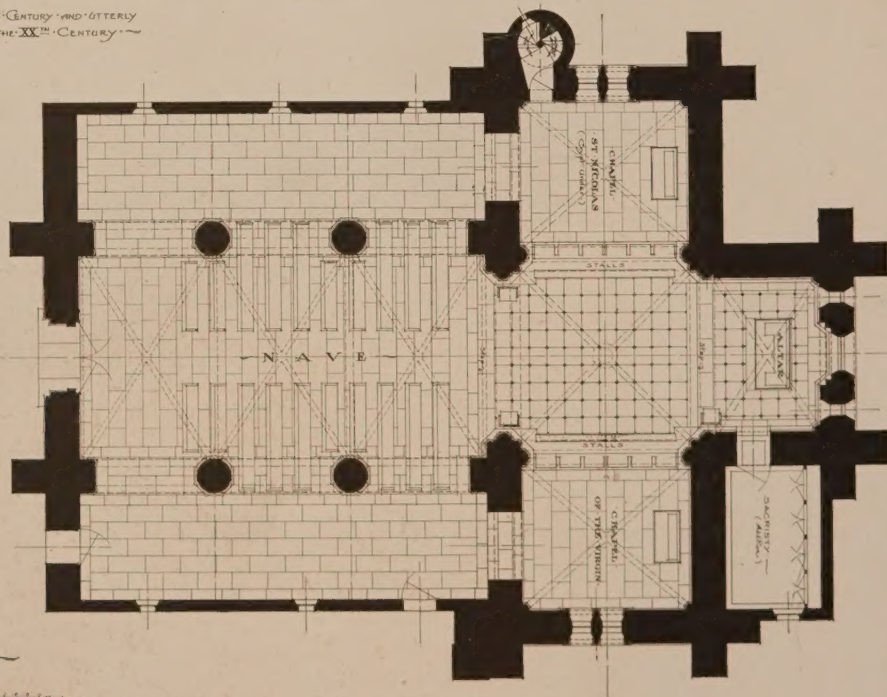
Scale: 1" = 10' 0"

— A. Compoint — Architect —
Rue de la République — Paris

RESTORATION

VILLAGE CHURCH - PARGNY-FILAIN - Aisne

BUILT IN THE XIIth CENTURY AND UTTERLY
DESTROYED IN THE XXth CENTURY

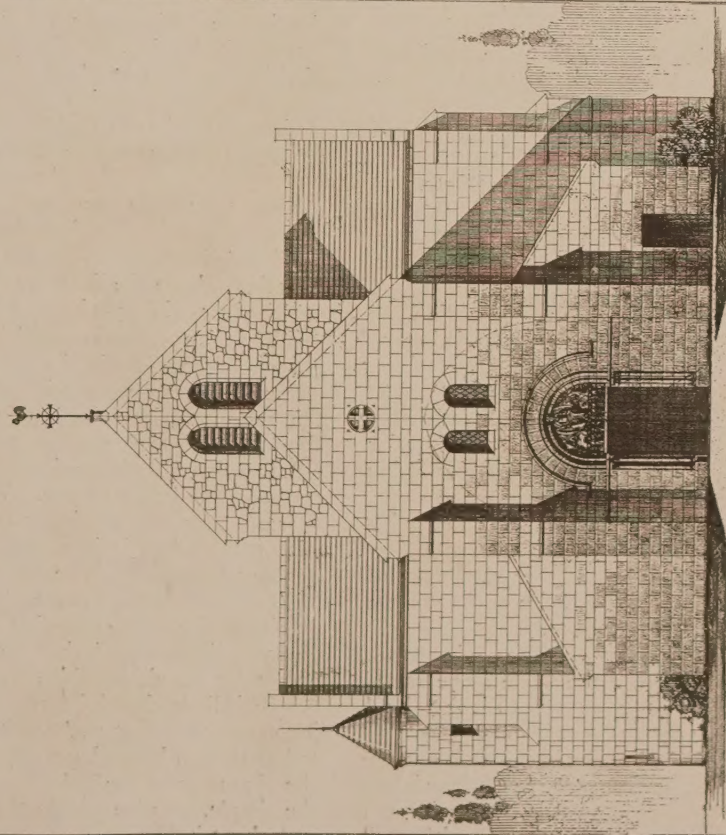


PLAN

Scale: 1" = 10' 0"

— A. Compoint — Architect —
Rue de la République — Paris

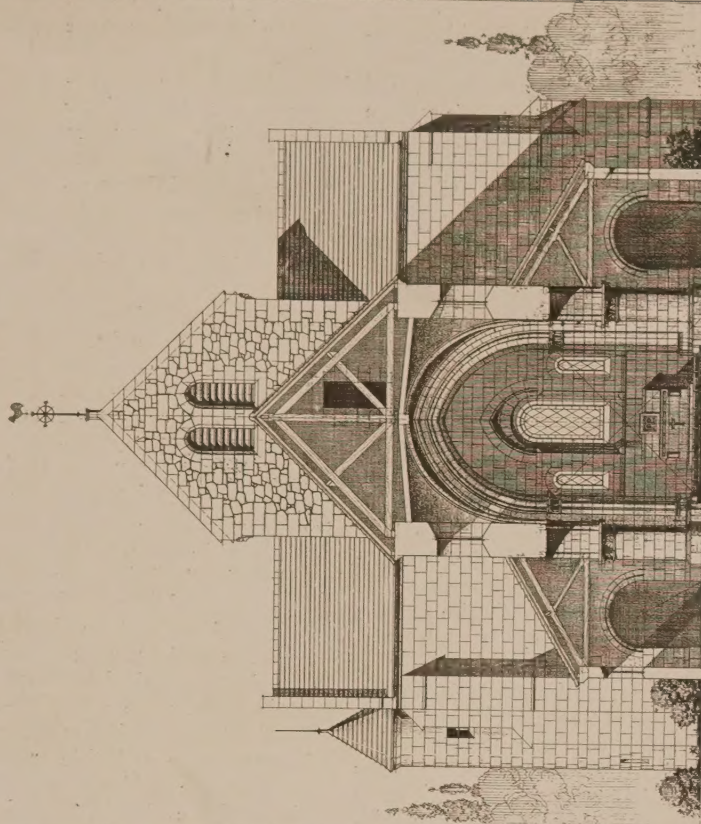
VILLAGE CHURCH · PARGNY-FILAIN · · · · · XIITH CENTURY · ·
· · · · · RESTORATION · ·



· · · · · FRONT · ELEVATION · · · · ·
· · · · · Scale · 1/4" = 1' · · · · ·

Architectural Drawing

· · · · · RESTORATION · ·
· · · · · VILLAGE CHURCH · ·
· · · · · PARGNY-FILAIN · · · · ·
· · · · · XIITH CENTURY · ·



· · · · · TRANSVERSE SECTION · · · · ·
· · · · · Scale · 1/4" = 1' · · · · ·

Architectural Drawing

(Continued from page 259.)

The aeroplane photograph shows this poor little village several days before the beginning of the great French drive of September, 1917. When the photograph was taken (22 Sept., 1917) the Boche was in the town—there were (as one can easily see in the photograph) many houses, of which some of the walls were still standing. The church (marked by a cross in the photograph) is a grand "blank." Churches ordinarily have towers or steeples, and the all-seeing eyes of the artillery, whether Allied or enemy, did not leave many towers standing in their pathway. Consequently, the site of the church in almost any village is easily distinguished by its emptiness.

Several days after the photograph was taken the French occupied the town, and several days later again they found it necessary to leave it. In those two intervals of several days the walls which appear in the photograph disappeared, and to-day it is very difficult to find even a cellar which remains.

The plan of any vaulted edifice is the *result*, and not the cause, of the system of vaulting employed. Hence, by a sort of converse reasoning, given the plan, one knows at once the system of vaulting that was employed. The section likewise and the façades as well are the *results* of that system of vaulting.

Knowing that the designers and builders of the Middle Ages in France employed the system of measures based on Charlemagne's foot, viz.: 12 pouces (inches)=1 pied (foot); 6 pieds (feet)=1 toise (2 yards), etc., the writer has believed it wise to measure buildings of that period with the measure by which they were laid out, and not with the metric measure in use to-day. When buildings of the Middle Ages are measured in the system in use at the time one is struck at once by the recurrence of the number 3 ("cabalistic number"), and the number 7 ("holy number"), in the dimensions of those edifices. Also there were certain well-established rules of proportion employed by the architects of the Middle Ages in laying out their designs; rules based on three triangles, as will appear later.

The width of the nave, for example, is 3 toises (18 feet), the diameter of the columns or piers is 3 feet, the intercolumniation in the nave is $1\frac{1}{2}$ toises (3 by 3 feet), etc.

In the country surrounding Pargny-Filain (a stone region), ever since time immemorial, the quarries have turned out building stones of a single size (called "parpaings"), 1 foot by 1 foot by 2 feet. When the wall is 1

foot thick, as the walls of the aisles, it is of a single thickness of the dimension stone; when 3 feet thick, it is composed of an interior and an exterior facing of the dimension stone, with rubble filling between, and with now and then a stone turned endwise to assure the bond.

The paving was of the same stone sawed in two (6 inches by 1 foot by 2 feet) excepting in the choir and the sanctuary, where it was in tiles of a harder and darker stone, with small

squares of black marble at the intersections of the tiles.

From the photographs mentioned above the number of courses was counted (the courses were always, in that region, 1 foot high), and the height thus established. In addition, the height

was based on a line at

3. THE SECTION based on a line at 45 degrees from the floor to upper side of the capital, in the arch separating nave and choir. The "generating arch" was based (as almost always) on the triangle which

Viollet le-Duc calls "Ggyptian" (being the section on the diagonal of the Great Pyramid), and of which the base is 8 parts and the altitude 5 parts. The diagonal ribs of the vaults (as always, up to the decline), were half-circles—a fact which, even not knowing the principle, was demonstrated by the interior photograph. The ribs of the nave vaulting sprung from small columns resting on the capitals of the piers. The arches between nave and aisle were semicircular (souvenir of the Romanesque architecture, which commenced to die with the birth of the Gothic, of which latter it was the "natural mother").

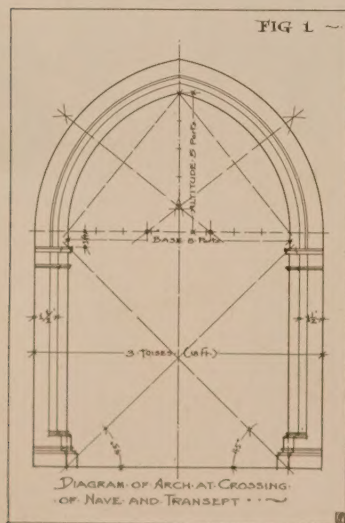
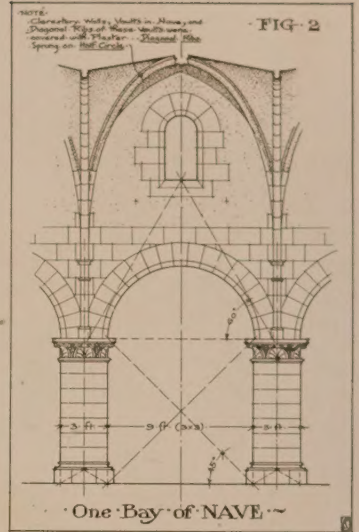
The aisles were covered with a wood ceiling under the slate, with exposed rafters, and trusses on the axes of the piers. The thickness, or rather the "thinness," of the walls proves this, leaving out of the question the indications supplied by the "chantre."

The front elevation was naturally the *result* of the section. (The photograph found was of the side elevation). As regards the entrance doorway, there is perhaps some small room for doubt as to its *absolute*

4. THE ELEVATIONS accuracy. The "chantre" told the writer that the "lintel was supported by 4 small columns—on the lintel were carved the 12 Apostles—above the lintel was a semicircular panel showing our Saviour with a winged animal on either side of Him."

The side elevation (which was clearly shown in the photograph) was again the *result* of the section. The gable of the south transept was in rubble—perhaps in accord with the architect's intention, perhaps because of a temporary shortage of "parpaings," perhaps the result of an accident followed by a "restoration." The window in the south transept was 1 foot off-axe. Why? There must have been a reason, for the architects of those days always worked with reason, but it is a reason that the writer has been unable to discover. The tower was in rubble with coins in "parpaings"—a head was carved on the axe, under the eaves, on either side. The covering was in those small, flat tiles, always a little warped, that one calls "Tuiles de Bourgogne," except for the aisles, which were covered with slates.

This little church impresses the writer as a most charming example of that *real architecture* which grows out of the soil as though belonging to it, and which expresses perfectly the character of the unknown masters who created it, and the simple, genuine people that have for centuries lived in and about it.



Permanent Memorial at Plymouth, Mass.

McKim, Mead & White, Architects

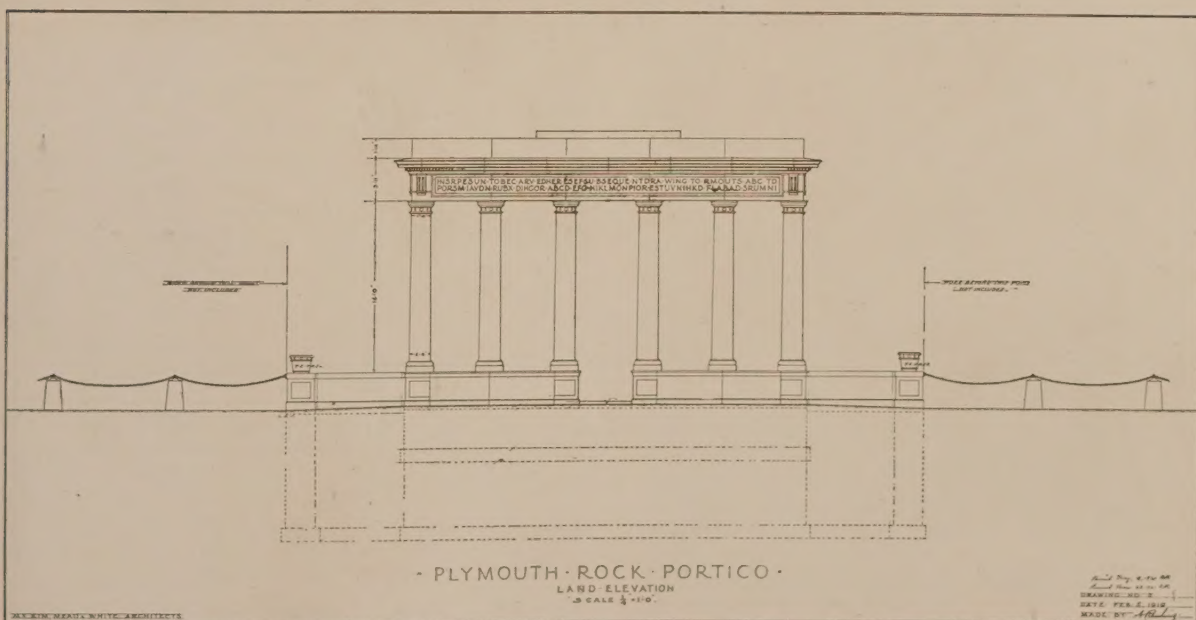
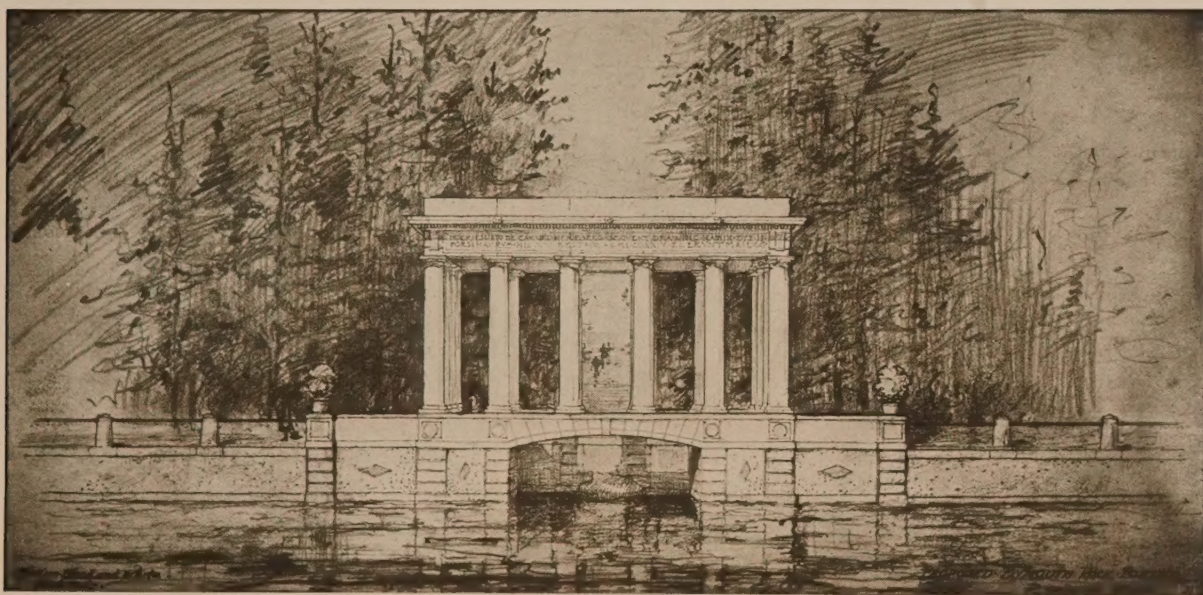
THE Pilgrim Tercentenary Commission have under construction the restoration and improvement of the waterfront at the scene of the original landing of the Pilgrims at Plymouth in 1620. The site has become a state reservation and the work is being carried out with the aid of State and Federal appropriations.

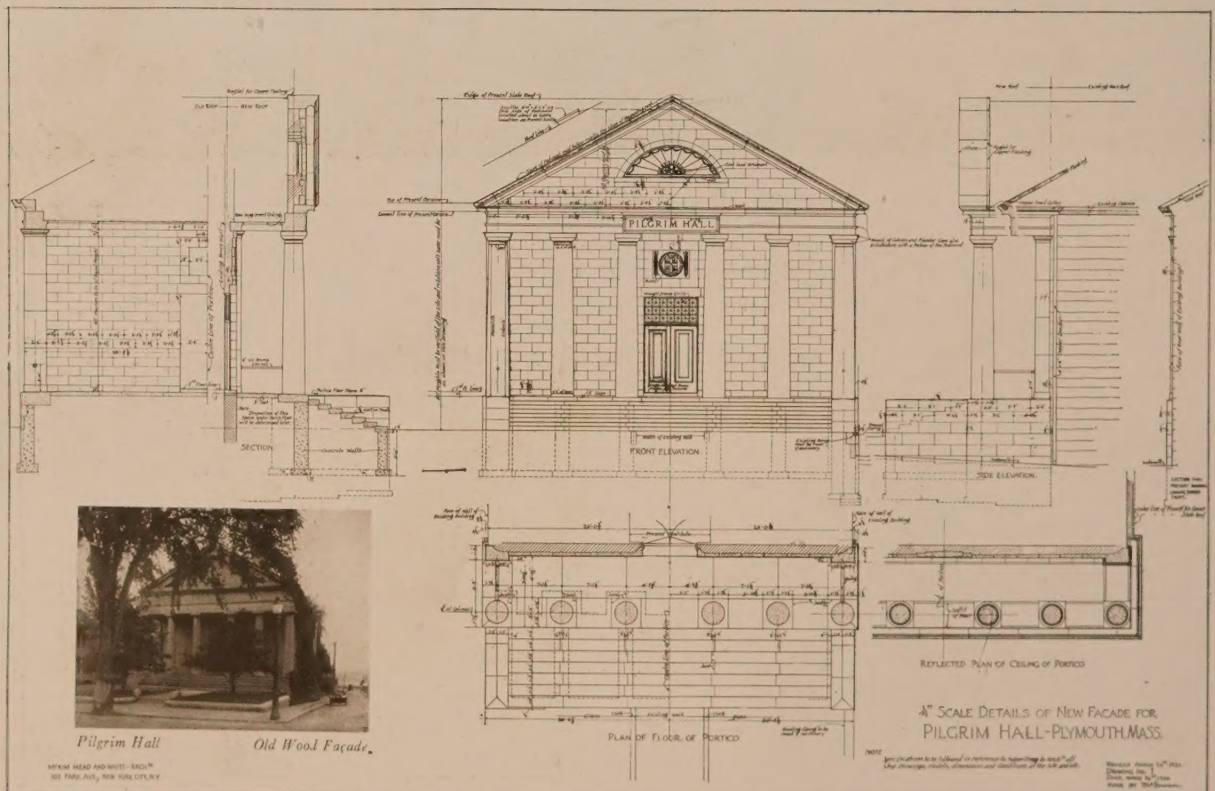
A part of the comprehensive plan is the removal of the old canopy over Plymouth Rock, lowering the rock to its original bed and the erection of the new portico which is the gift of the National Society of Colonial Dames of America. In the hillside facing the memorial it is proposed to

place a beautiful memorial fountain with sculpture by Jennewein. This will be the gift of the Daughters of the American Revolution.

A new granite front for Pilgrim Hall is almost completed. It is a replica of the Doric entrance portico. The building was erected in 1824 by the Pilgrim Society as a monumental hall, but strangely the granite building had a wooden façade which has been changed and repaired several times. The present work is a gift of the New England Society of New York.

McKim, Mead & White are the architects for the above and other architectural memorial features.





PLANS, PILGRIM HALL.

McKim, Mead & White, Architects.

A Pilgrimage to Plymouth

By Dwight James Baum, B. of Ar. A. I. A.

NOTE.—It would seem an easy matter at this late date to look through the average good library on colonial architecture and find illustrated examples of work in all the large centres of population in New England. After visiting Plymouth and taking a few photographs of its houses, the writer became interested in its primitive architecture and tried to get together further information on the subject. He was very much surprised not to find this data available even in the best architectural book stores or the New York public library. Finally the Plymouth Library Association was appealed to and they kindly loaned some of the original photographs, and these are reproduced in this article.



The Allyn House, built in 1639, taken down in 1826, was always considered the oldest house in Plymouth.

the pilgrims or their direct descendants give perhaps the best evidence of how instinctive and unaffected was the art of proper building as expressed by them. To create as they did, from crude materials without the aid of ornaments and in some cases, even mouldings, buildings that attract our admiration to-day shows an art that was devoid of all affectation.

The interest in the earlier houses lies in the splendid outline and carefully studied proportioning of window and door openings to the solid mass of plane wall surfaces. They achieve an unconscious relation of parts and proportion of openings to wall spaces and even glass divisions. Even the cornices, windows, and door architraves have a relation to the roof design and wall heights. Some of the crudities of design add a certain quaintness that would be lost by a refinement of design. That gambrel roofs were used with complete freedom and a perfect sense for their relation of parts again shows the frank handling without effort or affectation of the various fundamentals entering into the construction of these early houses. There seemed to be no rule of proportion for sometimes the gable is flattened and ample in width while in others the gable is restricted making for greater dignity and height.

When the early structures remain unaltered, they are beautiful in their sturdy proportions, outlines, and relations of ground-line to sky-line and chimney silhouettes. Occasionally one feature as a doorway would be worked out in a manner that showed a naïve understanding and appreciation of beauty in line and of fine detail. The scale of the entire structure was usually small except around the central chimney which was invariably the feature of the house. Low ceilings required less work to build, less material to hew, and were easier to heat and, therefore, the rooms were at first small for that same reason.

Ordinary tourists or sightseers would lose much of the charm of the town of Plymouth because it would not occur to them to go up the side alleys near business buildings on the main streets. The writer has found behind these, charm-

ing little houses which had been either moved back or built in front of the march of so-called progress and growth.

These New England towns are like no other place in the world. They express qualities of sincerity which we to-day find difficult to comprehend. The unpretending houses of other years, spreading elms and gray stone walls, blend into something forming the spirit of New England.

Each little town centres around a green, sometimes a triangle, sometimes a narrow rectangle and again a square. These greens are usually dominated by a quaint church. Houses usually are much alike, being simple square boxes two stories in height or one story with a gambrel roof giving the second-story space inside of rather steep roofs. The plans showed little variety, a nearly square rectangle so that the mass was a simple block, sometimes relieved by low wings and these probably later additions. And yet the old carpenter-architects produced endless variations with so simple a theme. They excite our interest, and by their variety of detail hold it even more than much larger structures.

Following the log-cabin stage, come the beginnings of American architecture, based on precedents brought from

(Continued on page 268)

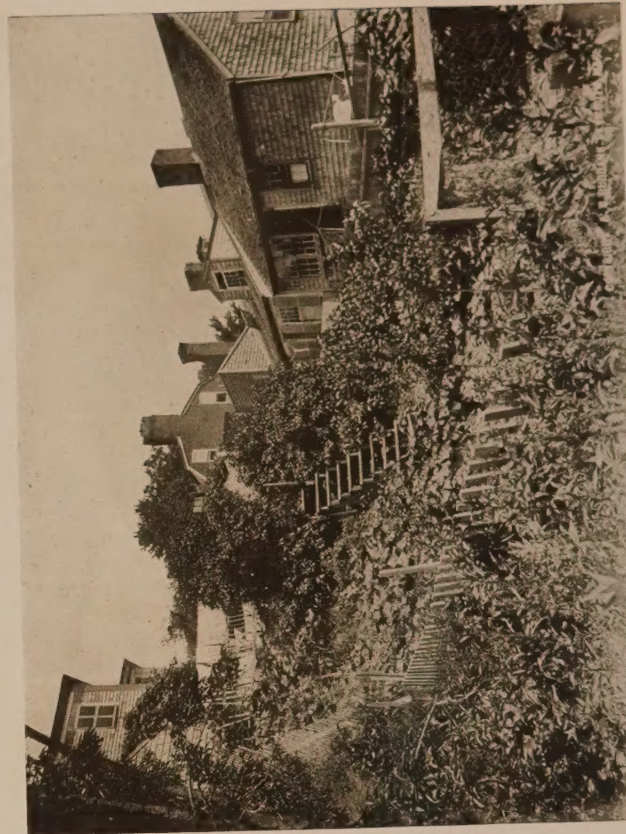


Spring Street, Plymouth.

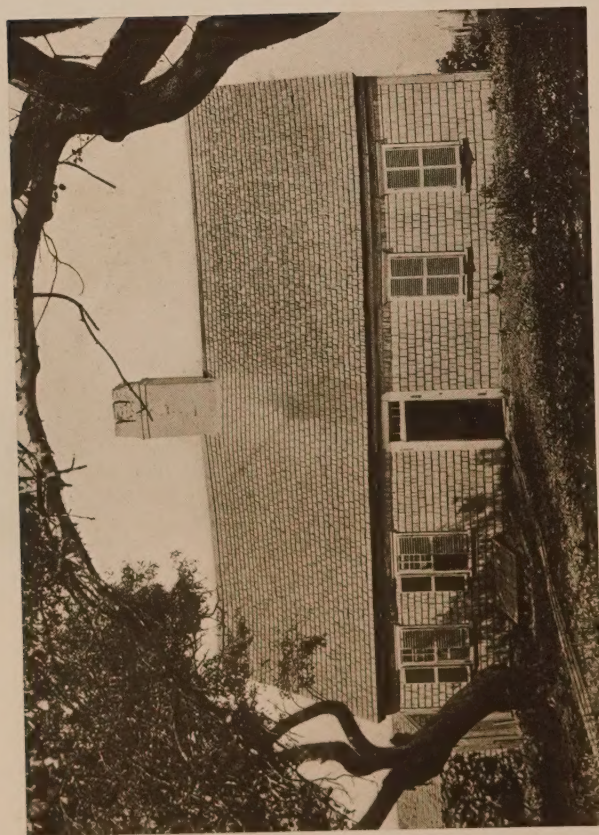


COPYRIGHT, 1892.
A. S. BURGESS.
PLYMOUTH, MASS.

WILLIAM CROWE HOUSE, PLYMOUTH, 1664.



PILGRIM MEERSTEADS, ALONG TOWN BROOK, PLYMOUTH.



DOTON HOUSE, PLYMOUTH. (Now Demolished.)



KENDALL HOLMES HOUSE, PLYMOUTH, 1666.



STANDISH HOUSE, DUXBURY, MASS., 1666. (Built by a son of Myles Standish.)



BRADFORD HOUSE, KINGSTON, MASS., 1675.



JOHN ALDEN HOUSE, DUXBURY, MASS., 1653.



OLD OAKEN BUCKET HOUSE, SCITUATE, MASS.



The Shaw House, Court Street, Plymouth. Built before 1701.

Photograph by Lilian M. Hobart.

(Continued from page 265)

overseas yet full of originality, expressive of strong Puritan character and well adapted to their needs. Necessity and utility were the dominating influences, therefore there is a rugged beauty in the early Puritan pine houses and churches that reflects their love of home and reverence for God.

In some of the houses you can see manifested the builder's fearlessness, sturdiness, faith, and even hopefulness.

This architecture is not a slavish following of English precedents. It was tempered by the sojourn of the Puritans in Holland and by the changed conditions of their environment in the new country. Only recently have historians traced the influence of other than English inspiration although it has always been apparent.

Records of colonial days expressed in their literature made slight mention of the houses and if we were not lucky to have a few remaining examples of our earliest architecture standing, we would be picturing the colonists as living in rough log huts. After landing in this country, what really happened was that their temporary abodes were replaced by primitive houses with more or less finished craftsmanship. This happened with the Pilgrims after their landing in 1620, and, as is shown in some of the remaining examples, the æsthetic as well as the practical side of the problem was considered.

Masonry was used very sparingly, usually only in the foundations and chimneys. Clay was often used for mortar, the space between wall studs was sometimes filled with common home-made bricks of a soft character. The chimneys combined brick and stone, the hearths usually of the

latter. Sometimes large tiles from Holland or England were used for the facings.

The primitive houses were in many ways different from the later and better-known colonial types both as regards exterior and interior. The houses were at first thinner and not of the square plan. The centre chimneys sometimes expressed on their sides the effect of pilasters which was never used on the later work and which recalled in a way some of the Gothic influence of the old world. The early houses were seldom, if at all, painted. The usual material, white pine, being left to weather. Some were probably painted at a much later date than their erection, but the green and white of the conventional colonial was a matter of later development.

While traditional methods of construction were brought over from the old world, the different conditions here rapidly changed these. Besides new materials that they were obliged to work with the difference in climate, severe storms, and changes in weather meant adapting their work to the new surroundings. This developed under these conditions results that were entirely distinct from those left in the old country.

If we had no other records of New England life, in its architecture, we could still trace its material and social progress. From the earliest crude farmhouses, to the later pretentious mansions, is expressed the struggles with the Indians, the fight for existence and, later on, the social life of the community. The early Plymouth houses express the sternness and simplicity of the lives of the people occupying them.

(To be continued.)

Editorial and Other Comment

To the Young Man Who Wants to Be an Architect

THERE are hundreds of young men in our colleges and schools who are inclined either by a naturally sensitive so-called artistic temperament or by association with those interested in the arts to look upon the profession of architecture or the practice of one of the other arts as an especially desirable field of endeavor. They acquire an appreciation, a responsiveness to things we call beautiful, and vaguely dream of achieving both material success and a distinct place in the community by following what they begin to speak of as their ideals. To such we owe much of the progress of the world in the way of creative things from the beginning of poetic expressions to the building of the Greek temples, the wonders of Roman construction, the aspiring spiritual work of the marvellous Gothic cathedrals, the beauty and richness of the Italian Renaissance. But many are called who have neither counted the cost nor really found themselves on the only road that arrives—the hard one of unremitting, patient, self-sacrificing work.

Mere aspirations of an æsthetic sort are soon dissipated by the discouragements that belong to any worthy creative endeavor and many failures are blamed on the world that began with the idea that in any art there is an easiest way. There's no royal road for the young man in our democratic times and we have been imbued with a very keen sense of the need for definite and well co-ordinated ideas for the accomplishment of any worth-while results. Vague dreamings must give place to downright and concentrated thinking along definite ways. It is not to the man with a so-called artistic temperament alone that we are looking for the big things, but to the one with an infinite patience and the capacity for the hardest kind of digging in.

We are prompted to these remarks by a recent interview with Cass Gilbert that appeared in the *New York Evening Post*. No one is better qualified by experience and accomplishment to speak to and for the young man who is thinking of architecture as a profession.

"If you are thinking of architecture as your profession," says Cass Gilbert, "ask yourself three questions before going into it. First, Is your motive to make money? Second, Do you think of architecture because you like art and things artistic? Third, Have you the irresistible impulse to build, to create? These are words of warning or words of encouragement, as the case may be, that ought to be said to young men in each of these groups.

"If you think you are going to find the road to fortune in architecture—stop right there. Don't go into it. There is a general misconception as to the financial profits of a successful architect. The same effort devoted to almost any other profession will pay you better. Granted that you reach the top of the profession and have sufficient knowledge to carry on and sufficient prestige to obtain important works,

you will have a large and expensive office organization to maintain between jobs, and that will eat deeply into what you make when you are busy. Furthermore, it takes a great many years to attain to that proficiency, and those years spent in some other work will be more productive financially. Therefore, it is the part of kindness to tell you not to go into architecture if you only want to make money.

"A man in my work will find agreeable companions and intellectual occupation and attractive environment. If he has the spark, on which all the rest depends, he will find far more than that. But unless he has that spark, which is made up of love of his work, an infinite capacity for taking pains, and great persistence, he should stay out of architecture."

As to Style in Our Architecture

THE great American architect in the sense of a designer who will so far depart from all precedent as to make the man in the street want to wave the flag and remark, that is American all through, will, we hope, never be born. We have had a taste—a bad taste, we should say—of the kind of art that is called original, yards of morbid and decadent canvasses that to us speak only of decay and the passing of art.

Who will deny that we have developed a distinctive, wholesome, and highly original American architecture, may we not see it manifested in our wonderful modern business buildings? And truly no one will be inclined to question the vigor and re-creation of old ways in some of the recent designs for great memorials. Our heritage is all the styles of the ages and we are entitled to use what we need, not in slavish copying, but in a new interpretation in keeping with the spirit and the aspirations of our own times. So-called originality is too often the mere exhibition of an ill-equipped mind. There is a lot of originality in the work of the savage and in the mind of the child, but very little of it is worth preserving except in tribal records and the day-book of some fond parents. If we see elements of the Greek, the Gothic, or more of the Italian Renaissance in our architecture, let us be thankful our designers have the good sense to value the best in the past and the courage to show us that they can use the past in new ways.

The Articles by Mr. Pond and Mr. Walsh

MR. POND'S articles on modern problems of "Concrete Construction" and Mr. Walsh's on "The Construction of the Small House" will be continued in early numbers. We are sure that our readers will be glad to know this fact and will not begrudge these gentlemen the needed vacations that have prevented them from preparing articles for this issue.

Course in City Planning and Civic Art at Columbia

George Herbert Gray, A. B., A. I. A. Instructor

CITY planning is so broad in its scope and the term is so inclusive that it has been well designated as a super-profession, into which enter as specialists the highway, traffic, and harbor engineer; lawyers and financiers; landscape architects and architects. The purpose of the present course is to train men in a comprehensive knowledge of the general subject of city planning and the special subject of civic art, so that they may ultimately take their place either as co-operating specialists or as the directing head of city planning projects. For any who may wish to pursue the general course and emphasize special phases of the subject other than civic art, special direction in their studies can be arranged for through eminent specialists resident in or near New York.

The subject will be presented through

- A. Lectures.
- B. Field work.
- C. Drafting-room work.

A. The lectures will cover the history and the development of types of cities in their relation to the general development of civilization, giving due importance to cause and effect as influenced by living conditions, available materials, and prevailing working facilities. In the study of modern cities, stress will be laid on special conditions in America and the solution of similar problems abroad.

B. The field work will consist of trips of inspection to various types of city development in New York and within reasonable distance therefrom. Sketches will be made of the finished work for comparison with the designs from which the work was executed.

Within a radius of six hours from New York there are a great number of communities large and small where are to be found the whole range of types of development of the various elements of city planning; housing in model tenements, in model industrial groups and suburban building parks; transportation facilities by water, rail, and truck, underground and overhead, with terminal, through, and local station developments; park and playground systems for communities large and small; civic centres for small towns and the monumental layout of the national capital. The importance of the advantages thus offered cannot be too strongly emphasized, particularly as it will be possible in many instances to have the designers explain their own work.

C. The drafting-room work will consist of the development of sketches, illustrative of the principles learned in the classroom by special readings and from field notes. As the general studies proceed, emphasis will be placed on the development of designs.

Equipment: Students in this course will have the advantage of the general equipment of the School of Architecture, including access to the Avery Library, one of the most complete existing collections of works on architecture and allied subjects.

Prerequisites: (a) A general schooling equivalent to two years of collegiate work in a recognized college, and (b) training in design in a school of architecture or landscape

architecture equal to three years' work, or an equivalent in office training.

This course begins October 5, 1921, in the Winter Session, and February 8, 1922, in the Spring Session.

Students desiring to take this course are required to enroll at the office of the Registrar, Room 315 University Hall.

For further information address the Secretary of Columbia University, New York City.

The Architectural Exhibition of the Thumb Tack Club of Detroit

An Architectural Exhibition is to be held, under the auspices of the Thumb Tack Club of Detroit, in the galleries of the Detroit Institute of Arts, October 17 to 30, inclusive.

Inquiries regarding exhibits and Year Book may be addressed to Mr. Wm. E. Kapp, 710 Washington Arcade, Detroit.

Book Reviews

THE AMERICAN HOSPITAL OF THE TWENTIETH CENTURY.

A Treatise on the Development of Medical Institutions, Both in Europe and America, Since the Beginning of the Present Century. By EDWIN F. STEVENS, Architect. The Architectural Record Co., New York.

We are glad to acknowledge the new and revised edition of Edward F. Stevens's valuable and comprehensive book on "The American Hospital of the Twentieth Century." It is of value not only to every architect but as well to all concerned in the construction and administration of the hospital of to-day.

This book, originally published in 1918, is recognized as the standard authority on the subject of hospital planning, equipment, and management. The first edition was sold out in a little over two years. The revised edition has been entirely rewritten, and much new material has been added. Instead of 274 pages with 350 illustrations and floor plans, it consists of 380 pages with 480 illustrations and plans. We believe that this new edition will be invaluable to every one interested in hospital planning whether or not he possesses the first edition.

It discusses every ward and department of a modern hospital, including the kitchen and laundry, devotes special chapters to heating, ventilation and plumbing, details of construction and finish, equipment, landscape architecture as applied to hospitals, and concludes with about 15 pages devoted to war hospitals.

DESIGNS FOR AMERICAN HOMES. By H. G. OUTWATER, American Society of Civil Engineers; Designs by CHARLES M. NOBLE, Society of Beaux Arts Architects; Drawings by H. R. HUNTLIFF, Society of Beaux Arts Architects. Contents: "Developing the Idea," "Selections of Materials," "The Function of Architect and Builder," "Designs for American Homes." Dodd, Mead & Co., publishers, New York.

The designs include types from the small, inexpensive bungalow in various examples, chiefly of colonial derivations constructed of various materials, wood, stone, brick, stucco, etc.

The text is addressed primarily to the lay reader, but the architect will find the designs and plans of interest and they may help him to solve some of the small-house problems that we hope are going to be abundantly provided in the coming months. All of the illustrations are from original designs drawn in line.

PLANNING CHURCH BUILDINGS. By HENRY EDWARD TRALL, M.A., Th.D. American Baptist Publication Society, Philadelphia, Pa. The Judson Training Manual.

"How to Proceed"; "Building for Teaching"; "Departmental Requirements"; "Auditorium and Other Rooms"; "Size of Building"; "Planning for 400 to 700 Capacity"; "Planning for 300 Capacity"; "Planning for 100 to 200 Capacity"; "Planning for 800 to 1,200 Capacity"; "The Architect as Artist"; "Standard Check List for Committee and Architects," by George E. Merrill, A. I. A.

A COLLECTION OF ANTIQUE VASES, TRIPODS, CANDELABRA, etc., from various Museums and Collections, after Engravings by HENRY MOSES and others. With over 120 reproductions selected by JOHN TIRANTI. John Tiranti & Co., 13 Maple Street, Tottenham Court Road, London, England.

The designs included, taken mainly from Piranesi, make a book of value to designers in every field of endeavor.



SPRUNT MEMORIAL PRESBYTERIAN CHURCH, CHAPEL HILL, N. C.

Hobart B. Upjohn, Architect.

Course in City Planning and Civic Art at Columbia

George Herbert Gray, A. B., A. I. A. Instructor

CITY planning is so broad in its scope and the term is so inclusive that it has been well designated as a super-profession, into which enter as specialists the highway, traffic, and harbor engineer; lawyers and financiers; landscape architects and architects. The purpose of the present course is to train men in a comprehensive knowledge of the general subject of city planning and the special subject of civic art, so that they may ultimately take their place either as co-operating specialists or as the directing head of city planning projects. For any who may wish to pursue the general course and emphasize special phases of the subject other than civic art, special direction in their studies can be arranged for through eminent specialists resident in or near New York.

The subject will be presented through

- A. Lectures.
- B. Field work.
- C. Drafting-room work.

A. The lectures will cover the history and the development of types of cities in their relation to the general development of civilization, giving due importance to cause and effect as influenced by living conditions, available materials, and prevailing working facilities. In the study of modern cities, stress will be laid on special conditions in America and the solution of similar problems abroad.

B. The field work will consist of trips of inspection to various types of city development in New York and within reasonable distance therefrom. Sketches will be made of the finished work for comparison with the designs from which the work was executed.

Within a radius of six hours from New York there are a great number of communities large and small where are to be found the whole range of types of development of the various elements of city planning; housing in model tenements, in model industrial groups and suburban building parks; transportation facilities by water, rail, and truck, underground and overhead, with terminal, through, and local station developments; park and playground systems for communities large and small; civic centres for small towns and the monumental layout of the national capital. The importance of the advantages thus offered cannot be too strongly emphasized, particularly as it will be possible in many instances to have the designers explain their own work.

C. The drafting-room work will consist of the development of sketches, illustrative of the principles learned in the classroom by special readings and from field notes. As the general studies proceed, emphasis will be placed on the development of designs.

Equipment: Students in this course will have the advantage of the general equipment of the School of Architecture, including access to the Avery Library, one of the most complete existing collections of works on architecture and allied subjects.

Prerequisites: (a) A general schooling equivalent to two years of collegiate work in a recognized college, and (b) training in design in a school of architecture or landscape

architecture equal to three years' work, or an equivalent in office training.

This course begins October 5, 1921, in the Winter Session, and February 8, 1922, in the Spring Session.

Students desiring to take this course are required to enroll at the office of the Registrar, Room 315 University Hall.

For further information address the Secretary of Columbia University, New York City.

The Architectural Exhibition of the Thumb Tack Club of Detroit

An Architectural Exhibition is to be held, under the auspices of the Thumb Tack Club of Detroit, in the galleries of the Detroit Institute of Arts, October 17 to 30, inclusive.

Inquiries regarding exhibits and Year Book may be addressed to Mr. Wm. E. Kapp, 710 Washington Arcade, Detroit.

Book Reviews

THE AMERICAN HOSPITAL OF THE TWENTIETH CENTURY.

A Treatise on the Development of Medical Institutions, Both in Europe and America, Since the Beginning of the Present Century. By EDWIN F. STEVENS, Architect. The Architectural Record Co., New York.

We are glad to acknowledge the new and revised edition of Edward F. Stevens's valuable and comprehensive book on "The American Hospital of the Twentieth Century." It is of value not only to every architect but as well to all concerned in the construction and administration of the hospital of to-day.

This book, originally published in 1918, is recognized as the standard authority on the subject of hospital planning, equipment, and management. The first edition was sold out in a little over two years. The revised edition has been entirely rewritten, and much new material has been added. Instead of 274 pages with 350 illustrations and floor plans, it consists of 380 pages with 480 illustrations and plans. We believe that this new edition will be invaluable to every one interested in hospital planning whether or not he possesses the first edition.

It discusses every ward and department of a modern hospital, including the kitchen and laundry, devotes special chapters to heating, ventilation and plumbing, details of construction and finish, equipment, landscape architecture as applied to hospitals, and concludes with about 15 pages devoted to war hospitals.

DESIGNS FOR AMERICAN HOMES. By H. G. OUTWATER, American Society of Civil Engineers; Designs by CHARLES M. NOBLE, Society of Beaux Arts Architects; Drawings by H. R. HUNTLIFF, Society of Beaux Arts Architects. Contents: "Developing the Idea," "Selections of Materials," "The Function of Architect and Builder," "Designs for American Homes." Dodd, Mead & Co., publishers, New York.

The designs include types from the small, inexpensive bungalow in various examples, chiefly of colonial derivations constructed of various materials, wood, stone, brick, stucco, etc.

The text is addressed primarily to the lay reader, but the architect will find the designs and plans of interest and they may help him to solve some of the small-house problems that we hope are going to be abundantly provided in the coming months. All of the illustrations are from original designs drawn in line.

PLANNING CHURCH BUILDINGS. By HENRY EDWARD TRALL, M.A., Th.D. American Baptist Publication Society, Philadelphia, Pa. The Judson Training Manual.

"How to Proceed"; "Building for Teaching"; "Departmental Requirements"; "Auditorium and Other Rooms"; "Size of Building"; "Planning for 400 to 700 Capacity"; "Planning for 300 Capacity"; "Planning for 100 to 200 Capacity"; "Planning for 800 to 1,200 Capacity"; "The Architect as Artist"; "Standard Check List for Committee and Architects," by George E. Merrill, A. I. A.

A COLLECTION OF ANTIQUE VASES, TRIPODS, CANDELABRA, etc., from various Museums and Collections, after Engravings by HENRY MOSES and others. With over 120 reproductions selected by JOHN TIRANTI. John Tiranti & Co., 13 Maple Street, Tottenham Court Road, London, England.

The designs included, taken mainly from Piranesi, make a book of value to designers in every field of endeavor.

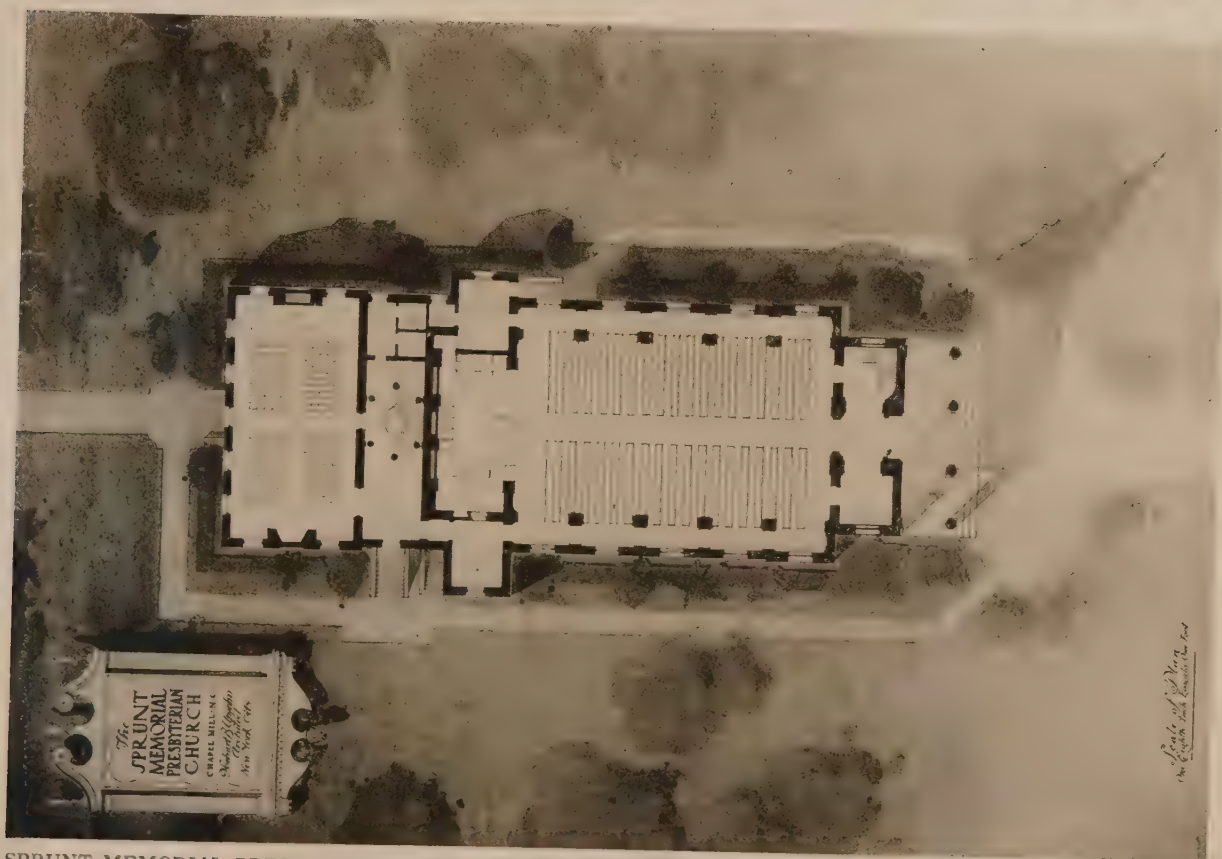


SPRUNT MEMORIAL PRESBYTERIAN CHURCH, CHAPEL HILL, N. C.

Hobart B. Upjohn, Architect.



CHURCH AUDITORIUM.



SPRUNT MEMORIAL PRESBYTERIAN CHURCH, CHAPEL HILL, N. C.

Hobart B. Upjohn, Architect.



THE CIRCULAR STAIRCASE TO SOCIAL ROOMS.



SOCIAL ROOM FOR STUDENTS OF THE UNIVERSITY.

SPRUNT MEMORIAL PRESBYTERIAN CHURCH, CHAPEL HILL, N. C.

Hobart B. Upjohn, Architect.



VIEW OF GARDEN.

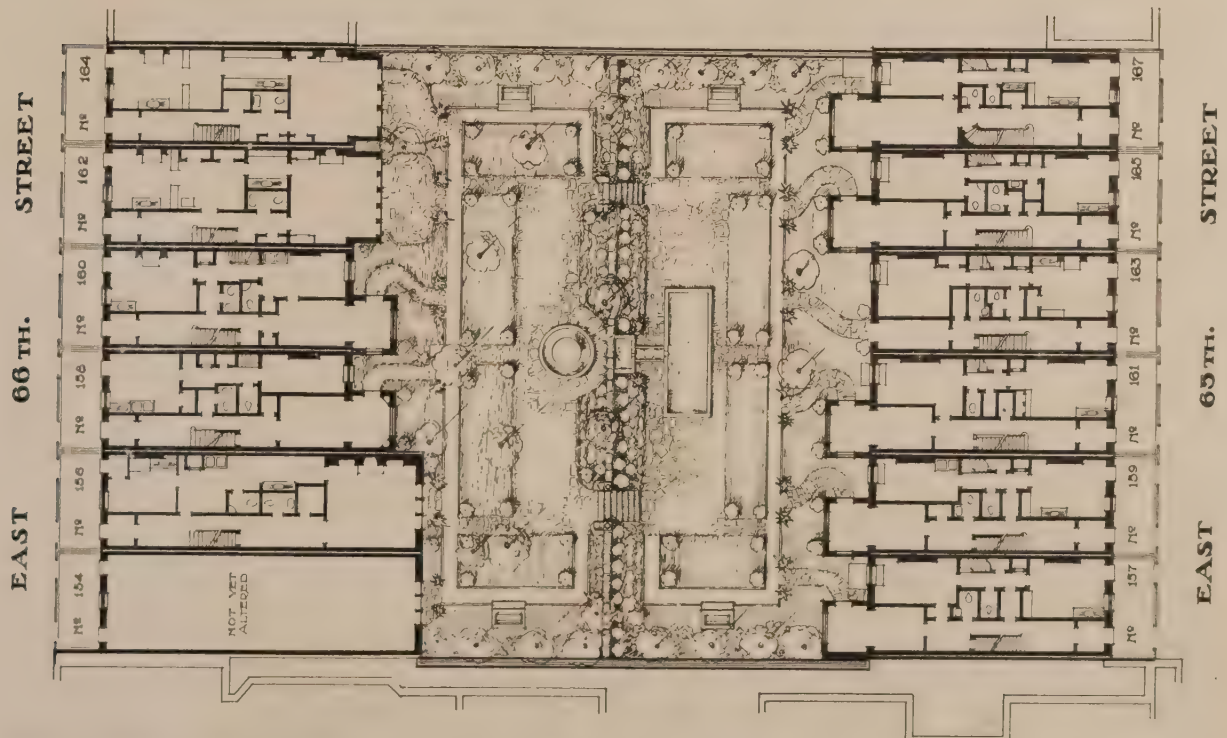


VIEW OF GARDEN.

Edward S. Hewitt, William Emerson, Associate Architects.
65TH AND 66TH STREET GARDENS, NEW YORK (ALTERATIONS).



NORTHWEST CORNER OF GARDEN.



65TH AND 66TH STREET GARDENS, NEW YORK (ALTERATIONS). Edward S. Hewitt, William Emerson, Associate Architects.



LIBRARY, RESIDENCE, CORNELIUS H. TANGEMAN.



DINING-ROOM, RESIDENCE, CORNELIUS H. TANGEMAN.

Edward S. Hewitt, William Emerson, Associate Architects.

65TH AND 66TH STREET HOUSES, NEW YORK (ALTERATIONS).



DRAWING-ROOM, RESIDENCE CORNELIUS H. TANGEMAN.

65TH AND 66TH STREET HOUSES, NEW YORK (ALTERATIONS).

Edward S. Hewitt, William Emerson, Associate Architects.



GARDEN-ROOM, RESIDENCE, MORGAN W. JOPLING.

65TH AND 66TH STREET HOUSES, NEW YORK (ALTERATIONS).

Edward S. Hewitt, William Emerson, Associate Architects.



LIBRARY, RESIDENCE, GEORGE M. BODMAN.



DINING-ROOM, RESIDENCE, PHILIP L. JAMES.

Edward S. Hewitt, William Emerson, Associate Architects.

65TH AND 66TH STREET HOUSES, NEW YORK (ALTERATIONS).



ENTRANCE-DOOR, RESIDENCE, ARTHUR W. PAGE.



GARDEN-ROOM, RESIDENCE, ARTHUR W. ROSSITER.



GARDEN-ROOM, RESIDENCE, ARTHUR W. PAGE.

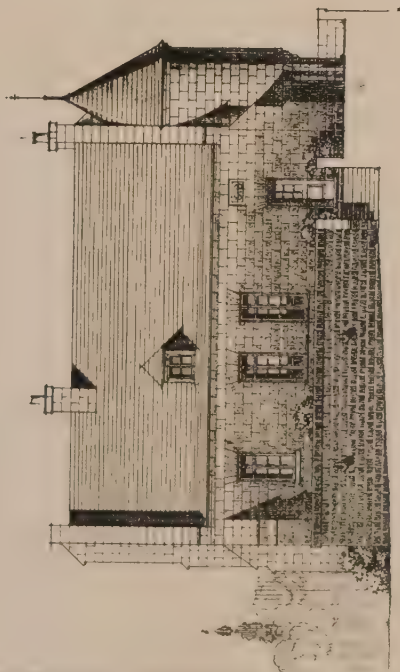


ENTRANCE-HALL, RESIDENCE, CHARLES J. SYMINGTON.

65TH AND 66TH STREET HOUSES, NEW YORK (ALTERATIONS).

Edward S. Hewitt, William Emerson, Associate Architects.

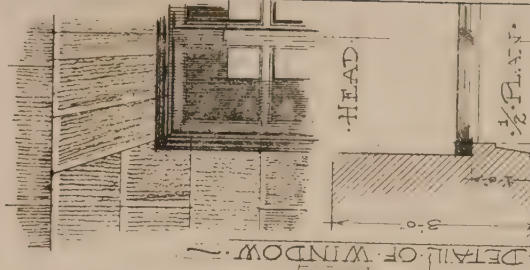
XIVTH CENTURY FARMHOUSE: DEPENDANCE OF THE ABBEY OF PRÉMONTRÉ.~
~CÉAR FAUCOU COURT.~AISNE.



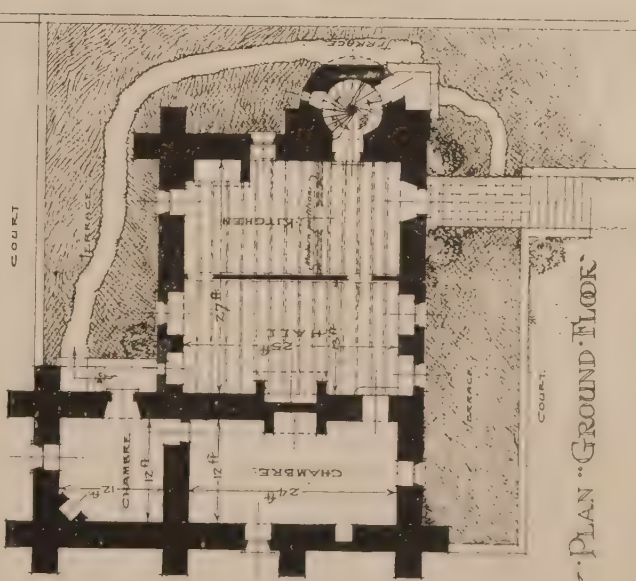
ENTRANCE FRONT.



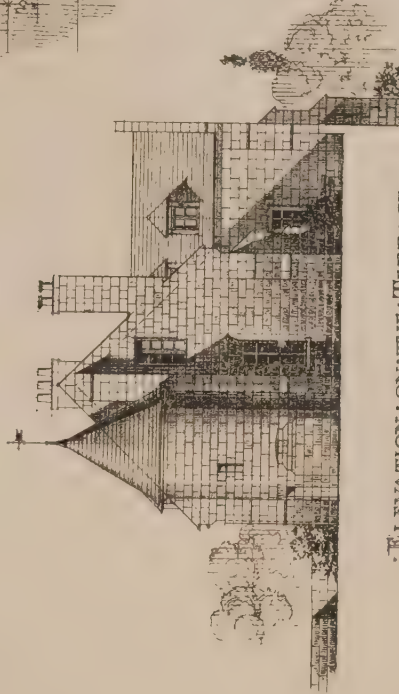
REAR ELEVATION.



DETAIL OF WINDOW.



PLAN "GROUND FLOOR"



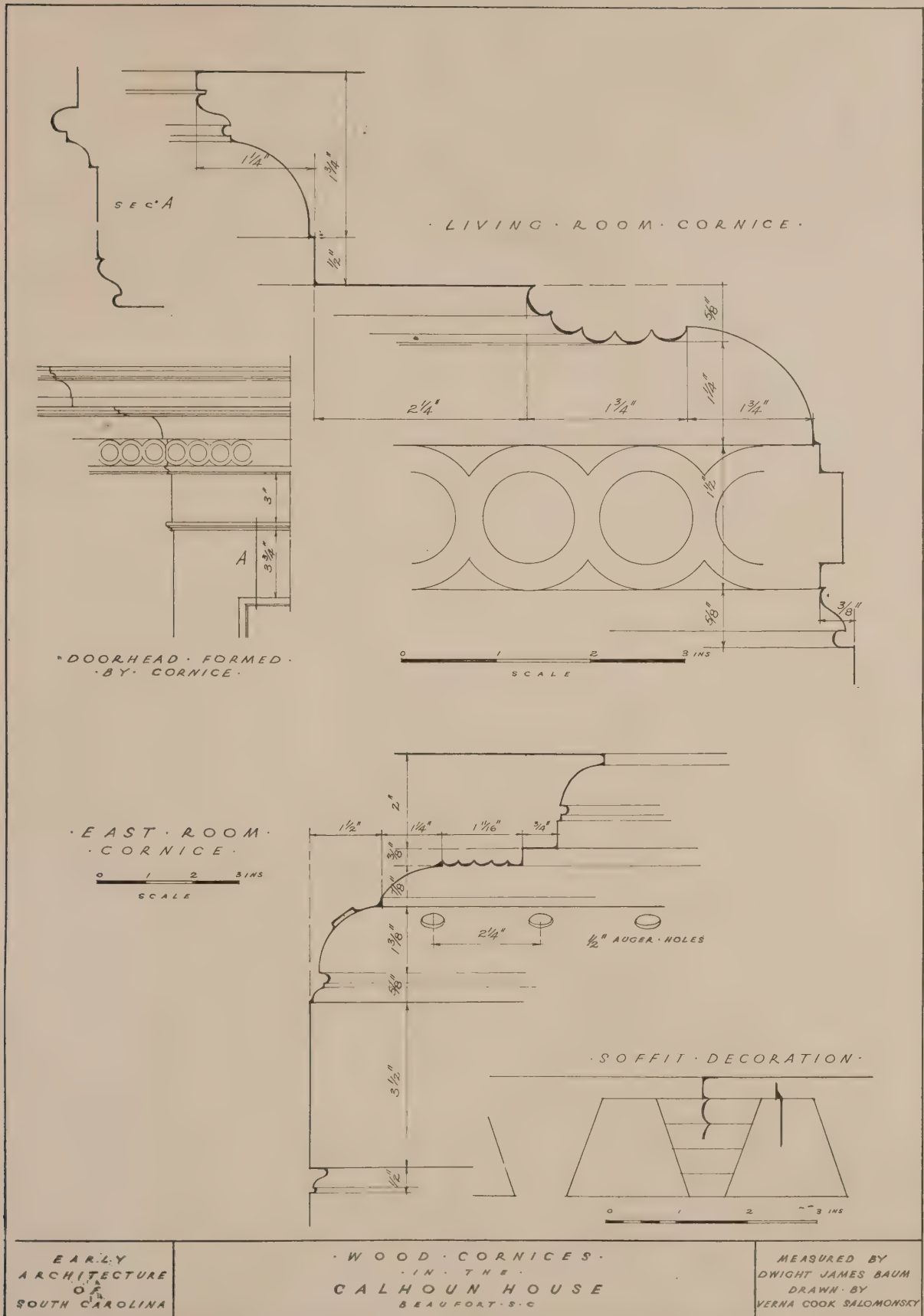
ELEVATION ON THE TERRACE.

TOWARD THE ROAD.

Scale: 1/4" = 1 foot.

DETAIL OF CORNICE
AND FINISH OF
GABLE COPING.

Measured 1920. Drawn 1921.
by J. G. Gough, architect.



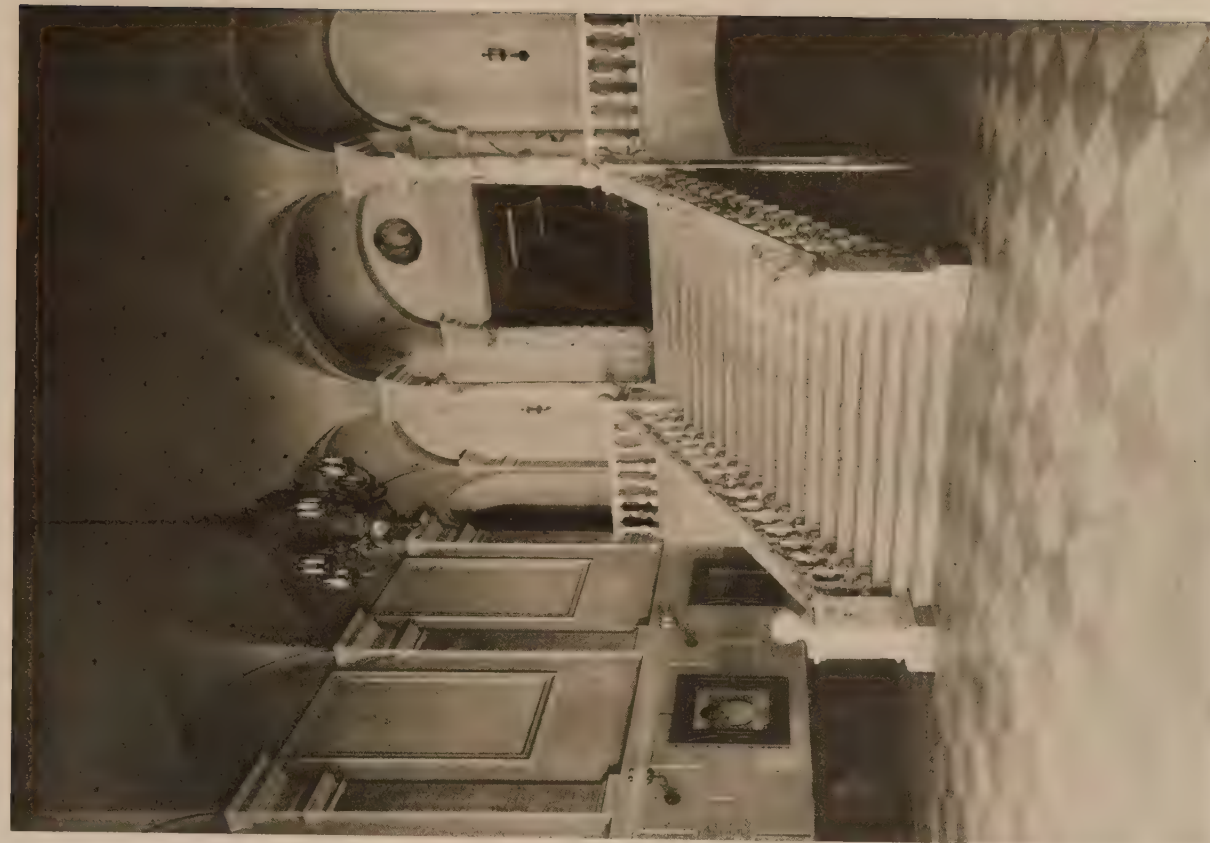


HOWARD THEATRE, ATLANTA, GA. (PEACHTREE STREET).

Hentz, Reid & Adler, Architects.



STAIR-LANDING, SHOWING STAIR TO UPPER BALCONY.



LOBBY.
HOWARD THEATRE, ATLANTA, GA.

Hentz, Reid & Adler, Architects.



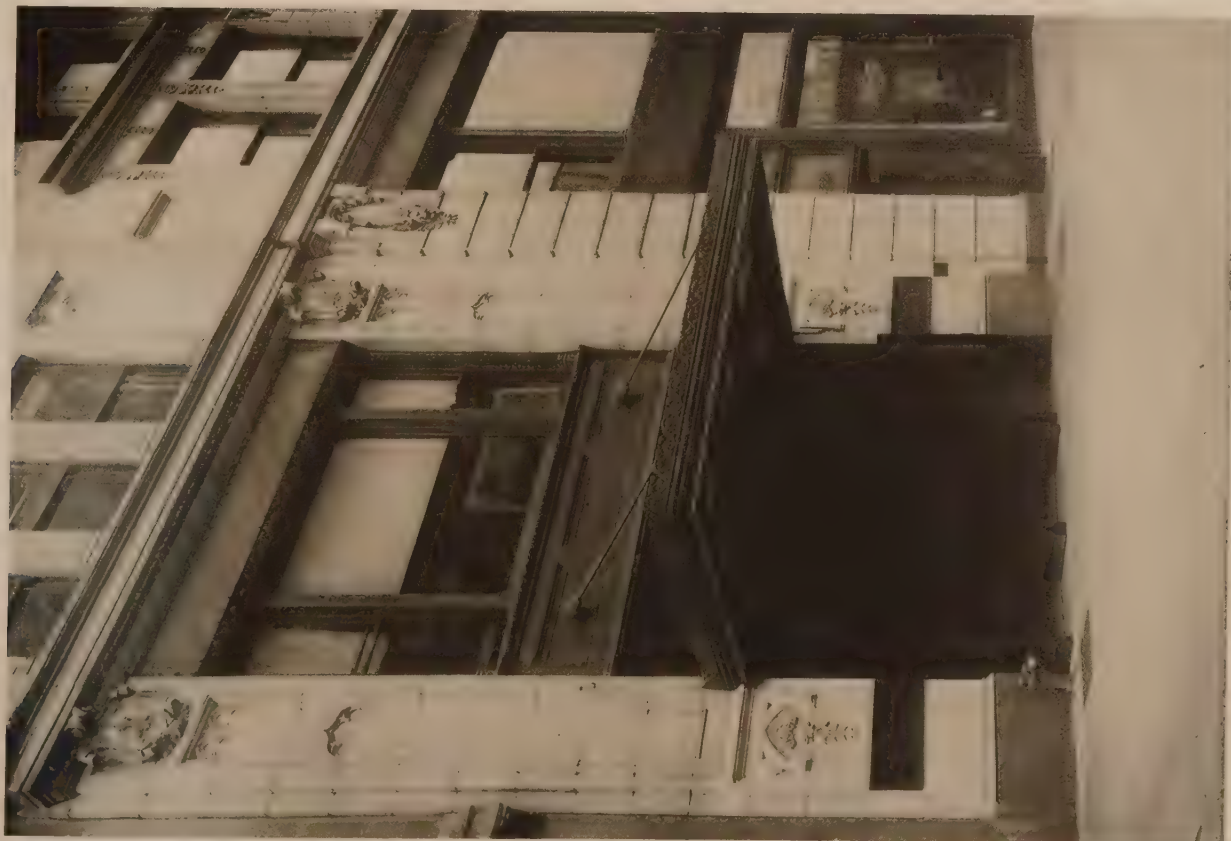
SIDE WALLS OF BALCONY.



PROMENADE.

HOWARD THEATRE, ATLANTA, GA.

Hentz, Reid & Adler, Architects.



ENTRANCE TO OFFICE-BUILDING.



FIREPLACE IN DIRECTORS' ROOM.

J. V. Phelan, Architect.

OFFICE-BUILDING FOR GENERAL MOTORS CORPORATION, NEW YORK.



LOUNGE.



ELEVATOR LOBBY.

J. V. Phelan, Architect.
OFFICE-BUILDING FOR GENERAL MOTORS CORPORATION, NEW YORK.



OFFICERS' DINING-ROOM.



DIRECTORS' ROOM.

J. V. Phelan, Architect.

OFFICE-BUILDING FOR GENERAL MOTORS CORPORATION, NEW YORK.

Office-Building, New York

J. V. Phelan, Architect

THE office-building of the General Motors Corporation, located at the corner of 57th Street and Broadway, New York City, occupies an area of 16,800 square feet. The structure provided when erected for two separate and distinct buildings. The corner building was purchased first, and building south of it was purchased a few years later.

Both buildings were originally designed as loft buildings, and, being in the automobile district, developed into a general automobile building. The ground floor, entirely, was used as automobile sales rooms, and the upper floors for repair shops, paint shops, forge shops, upholstery, etc.

Upon the purchase of the southerly building in 1919, alterations were made to combine both buildings for the purpose of furnishing offices for the executives and other divisions and departments. The entrance from Broadway was eliminated, and a new entrance provided on 57th Street. All of the old elevators were removed, and new high-speed passenger-elevators provided at the 57th Street entrance.

The ground floor, used for automobile sales rooms, was remodelled. The first floor provides for public reception-

room, rest-rooms, and locker rooms for the female employees, telephone and mail rooms, and general offices. The second to the seventh floors are arranged for general and private offices.

On the eighth floor is provided the general executive offices, directors' room, etc. The directors' room is on the inside of the building away from noise, and is provided with top light and artificial ventilation. The top light is controlled by means of a ventilighter placed between the skylight and diffusing sash, and operated from a secret panel in the side wall.

The ninth floor, which is the roof, provides the officers' dining-room and service-rooms, barber shop and bath, and toilet facilities. They are located inside of the structures found on the roof of the original building except the additions constructed for the new elevators.

The space occupied by the dining-room was originally a forge room. The kitchen and serving-room were provided inside of a large automobile elevator penthouse.

The decorations of the rooms and the furnishings are by the Hampton Shops.

Sprunt Memorial Presbyterian Church

Hobart B. Upjohn, Architect

By Aaron G. Alexander



Rear of Sunday-school building.

IF you have had the pleasure of visiting the University of North Carolina, situated in Chapel Hill, and wandered across its beautiful campus, you undoubtedly have noticed, directly across the main street, a church nestling in among its picturesque surroundings. You probably thought it one of those rare old gems which had been overlooked when you were South collecting photographs for the enlightenment of the architectural profession.

Through the generous co-operation of the donor, Mr. Upjohn has erected a building which harmonizes so well with its surround-

ings that one feels as though it might have been standing a hundred years. From the graceful, stately lines of the front portico, and the fine proportions of the spire, you see that a skilful hand has designed the building. The colonial texture in the brickwork obtained by using a local product, the brick steps and quaint door to the Sunday-school, and the rear of the Sunday-school building with its gabled end and large chimneys against the choir room gable and church, terminated by the spire, strengthen the impression.

The church auditorium with its pure Doric pilasters between the arches is in perfect proportion. In each arch is an old window the glass of which is a light amber tone, which casts a soft light over the seats finished in old ivory with mahogany rails and top. Around the windows hang curtains of blue and gold weave. The walls above the panelled wainscoting, which is finished in old ivory, are treated in a light buff color, and the whole, combined with the old brass candelabra, the organ front of fine detail, and the boxed choir stalls, makes a most pleasing and restful effect, and one's thoughts involuntarily go back to the old New England meeting houses.

Passing from the church through the choir room you find the Sunday-school room. At one end is a large fireplace while opposite to it is a platform on which are the original pulpit and chairs used in the old church which occupied the same site as the present edifice. The basement is reached by an elliptical staircase. A very homey room with bookcases, wainscoting, beamed ceiling, and a large fireplace opens off the basement hall. This room is used as a meeting room for the students of the university and is a very interesting feature. On the other side of the hall is a classroom, also with an open fireplace and built-in seats, which can be turned into a dining-room, as it connects with the kitchen.

You pass out to the street, feeling that you have spent a pleasant half-hour. A glance at the grounds shows that they as well as the surrounding rubble stone wall which is built up in the old-fashioned way without the aid of cement, have been laid out with the same care.

Waste in Advertising

By Louis Lott, Architect

MR. STOWE PHELPS, in his article "Reaching the Architect by Advertising," in this magazine, May, 1920, that was widely read and commented upon, made the statement that from 1 to 2 per cent of advertising is good, about 25 per cent fairly good, and the rest practically zero. These figures may or may not be absolutely correct, but at all events the above statement presents a stupendous aspect of lost opportunities, wasted resources, wasted efforts, wasted time, wasted materials, to the nation as well as to the individual, and would indicate, to use an analogy, very low-grade efficiency of the fuel used to steam up. However, far from disheartening the advertiser, it should rather stir him to find the reasons for such inefficient effort by means of a thoroughgoing analysis of the elements that go to make good and effective advertising, and to a determination to apply the remedy to his own needs; for certainly a much greater percentage than indicated above can be converted into effective advertising.

The following notes, based on long observation, contain points that are, or should be, commonly known, but some of them evidently are not given serious thought.

I will take up the subject under the following heads:

1. Knowledge of fundamentals. 2. Requirements of a good ad. 3. Composition of reading matter. 4. Composition of space. 5. Illustrations. 6. Catalogues, pamphlets, and letters.

The English writer Gilbert Chesterton, touring this country, delivered a lecture under the sensational and catch-all title of "The Ignorance of the Educated," in which he conveyed the idea that many an educated person is ignorant upon subjects correlated to his occupation, of things he writes about, of phrases he uses, and, for that matter, this may apply to some parts of this article! In all events, it applies very much to the average advertiser who, more likely than not, proceeds along the lines of tradition and previous experience, and in every magazine issue proves his lack of knowledge and consideration of fundamentals, proper estimation and consideration of the other fellow's problems and time allowance, art, and lack of concentration in the ad. The reasons for the latter and a consequent ineffectiveness or total worthlessness can be summed up to be a discouraging length of reading matter, a lack of clearness, small type, crowding of space, helter-skelter arrangement of type and illustrations; in other words, restless, fussy composition, and absence of the right kind of interesting, attention-compelling features upon which to fasten the eye and then the mind.

Much of that which is said in the following when properly modified to its particular use should hold good in all advertising. It should be understood, however, that the ad that will bring results from the trade or the one which will make a successful appeal to the lay public may arouse little or no interest in the architect, if it has failed to take into consideration the dual factors involved in his calling, namely, practicability and art, which would make it advisable to present to him pertinent, practical, reliable data in a concise, attractive, orderly manner, that will once compel his attention.

Therefore, in order to proceed intelligently with advertising material that is intended to command his interested attention and respect, it is necessary to understand what are the peculiarities of his calling, which for better understanding are here recited at some length.

There is probably no other profession in which the individual is called upon to give more professional service, coupled with business and professional responsibility, nor one that deals with more problems and crafts, that bring him in contact with a greater number and variety of products. His activities are widely diversified and consist of interviews, salesmanship, designing, specification writing, construction, superintending, consulting, bookkeeping, correspondence, filing, etc. Therefore, it can be readily understood that his time is a very precious commodity, which he must conserve to the utmost if he is to give proper consideration to advertised new materials and devices, as well as to the increasing complexity of building and the business side of his office. He must meet the increasingly exacting demands for expert service with an average small office force that has few specialized subdivisions, and the advertiser should understand that the architect subscribes to from one to a half dozen or more professional magazines which he is often compelled to look through rather hurriedly, and that in the course of the year he receives thousands of catalogues, pamphlets, and follow-up letters. How can he be expected to become interested in an ad if at the very start he becomes disheartened by the very length of the reading matter? Therefore, in his own interest, the advertiser should first of all be as considerate as possible of the architect's time, and present his matter in the most concise form.

Many advertisers endeavor to say too much in their space, thereby bidding for more of the reader's time and attention than they are entitled to, with the result that they often receive little or none at all. The reader hurriedly glances over it, there has been no concentration, the impression upon the mind will be confused instead of clear and firm, and the purpose of the ad more or less defeated. Therefore, all detailed information should be omitted or reduced to an absolute minimum, and then should be submerged in the composition of the ad in such a manner that the important announcements stand out clear and in themselves make up the ad, with the detail forming a background. All further arguments and information beyond the most essential should be presented in follow-up catalogues, pamphlets, and letters, to which attention should be called. These should also possess the virtue of the greatest brevity and clarity.

Furthermore, consideration for the reader's eyesight must be shown. This does not necessarily call for large type, but for one that is sharp and well spaced, and that can be read with the greatest comfort. Newspaper publishers punish the public without heed, but unless the reader is particularly interested he is not likely to read an ad that requires an effort to do so. Remember you are asking the reader to read your ad; besides that, you are paying for it.

The ad should furthermore be simple, yet forceful with-

out being bombastic or screaming; the latter will only serve to irritate some readers.

It should be carefully worded and be easily understood without an undue amount of concentration and study. This may require hours or days of patient and painstaking selection, arranging, and rearranging of the wording, but the result obtained will be worth the effort.

And, above all, the ad should be *honest*. One of the foremost commercial research men recently said: "There is one thing advertising will not do. It will not build a permanent market for an inferior product. The more a manufacturer advertises unworthy merchandise the quicker he brings about the dissolution of his business."

If the ad and the information contained therein have proved misleading to the architect he is most likely to remember this, for the advertiser must bear in mind the great responsibility the architect bears toward his client, who is usually not slow to lay the blame upon him for anything that goes wrong. If the improper use of any product is the cause for imperfect service the architect's reputation is placed in jeopardy. Therefore, the advertiser who desires to do business with the architect must co-operate with him in mutual service to the client, and furnish him with reliable information backed up by facts.

It must be clear, concise, and to the point, containing neither too much nor too little, refer to additional literature, such as catalogues, pamphlets, etc., and be in a type that is comfortable to the eye. It must be simple and easy to read and understand, be carefully worded and honest, and be forceful and interesting to the eye and mind. For it should be remembered that the ad is the silent salesman of the advertiser and must attract and hold the reader's undivided interest long enough to impress upon his mind the most salient points. Therefore, since it makes an appeal first to the eye its appearance must be so attractive, pleasing, and neat that it cannot be overlooked. The next thing is to make it so interesting that the reader will concentrate his mind upon it. It is then up to the article to sell itself.

This should be most carefully and clearly worded and be concise. What a thing is and what it is good for should be easily discernible without necessarily reading through the entire ad. Very often the name of the product or that of the concern is the outstanding feature, but they do not always convey to the reader that which is intended, namely, what the name stands for.

The one great factor that is possibly less understood and which has received less competent attention than any other, and the one that in my opinion is responsible for many failures in advertising, is composition of space. This embraces a proper relation of used to unused space, including placing, size, and kind of illustrations and the kind of lettering and its distribution; in other words, a proper distribution of black and white, whereby the finished ad will appear pleasing and restful to the eye, and the eye should, moreover, easily focus itself upon the attention-arresting features. Thus the reader without any effort will first behold something interesting and harmonious, thereby preparing his mind for the mental absorption of the meaning and contents of the ad.

In order to accomplish this the composition should be as severe as possible, the more perfectly symmetrical the better. This, however, does not apply to illustrations in themselves. Very often one will find an ad with illustra-

tions scattered helter-skelter all over the space in a would-be artistic disorder. Also one will find up to a dozen or more different kinds and sizes of type and lettering used, sometimes placed at all manner of angles. Such an ad is jumpy and jerky, much after the fashion of a strongly vibrating movie which causes distinct physical discomfort. How can people be expected to be attracted by, and concentrate upon, such an ad and search out its meaning?

In order to be successful an ad need not necessarily be accompanied by an illustration, but here, as above, the importance of composition or the relationship of black to white comes in, and the selection of the proper type and its spacing may make all the difference between success and failure. However, because of the fact that almost every person of any age is attracted by pictures, and that an illustration can often convey more than a whole page of print, and because it appeals to the imagination and sets it to work, the selection of some kind of illustration or attractive ornamentation would seem desirable and worth while.

Generally speaking, illustrations should be sharp but not hard, and of a size that, again, will not strain or confuse the eye in the least. They should be as original as possible, and be selected with the greatest care for appropriateness and artistic quality; the illustration must stand out and yet tone in with the whole composition. It might be said here that the possibilities of some mediums, such as photography and etching, have barely been touched.

Judging from the average artistic quality of the ads shown in our magazines one would conclude that the average advertiser is a poor judge of art and, moreover, as a man of affairs does not have a very high opinion of this field of endeavor in that he does not engage competent counsel to assist him to determine what is good or bad.

As a matter of fact, art has very much to do with successful advertising. With rare exceptions, only the well-trained artist in design can produce a satisfactory "Composition of Space" and illustrate an ad in such a manner as to give it its attention-commanding quality. The average commercial art talent now employed in the advertising field is not producing the best class of work. Nor is the best available talent apparently as often employed as it should be. Once a higher standard is set and the demand for the best increases, this demand will be met by the various schools for industrial design scattered here and there over the country. Therefore, in the measure that the average business man and advertiser becomes interested in and supports the art schools, institutes, and museums in our various cities and consults with competent representatives of the class of people he intends to reach with his ad, in that measure will he turn out better and more efficient ads and, incidentally, better-looking manufactured products which will be more readily sold, have a wider market, and better meet competition.

The day may not be so far distant when advertising will be recognized by all advertisers as a real art, and when more artists of unusual ability, lured by adequate patronage and remuneration, will enter into this field. In certain special fields of advertising this day has arrived.

Summed up it might be said that besides such advertising as is wasted because it is often not even noticed, let alone read, there is much that could be more effective in a smaller space if properly composed, others are ineffective either because the space is not large enough or too crowded, or because of lack of effective composition and wording.

In order to proceed intelligently with the make-up of

this sort of material the manufacturer should recall what has been said about the architect's time. The question of art is here of less importance than is clarity, brevity, and concise information. However, there is something more than just advertising involved in this sort of material, to wit, real scientific, reliable information, and specifications resulting from extensive research work and tests. Some industries are already distributing such data, which is of great help to the architect. On the other hand, some industries are in the habit of sending to the architect pamphlets containing factory news and other lengthy and useless printed matter that may contain some good information, worthless to him because it would take too long to dig it out, consequently it goes into the waste-basket. Others send out elaborate folder sheets with printed matter and illustrations spread helter-skelter over the entire space, and in order to make it more barbaric and confusing different colored inks are used. Most of this is also worthless. Others send out illustrated material sometimes elaborately gotten up, which does little credit to these firms and industries, and, what is worse, is directly demoralizing the to profession in that such material, not having been edited by a competent discriminating person, contains very crude examples of so-

CATALOGUES,
PAMPHLETS,
AND LETTERS

called architecture, which the able architect will not keep. This sort of stuff may make an appeal to the ignorant, but it is not worthy architecture and should not be sent broadcast.

In regard to size of catalogues, etc., it ought not to be a superhuman task to divide industries, first, into unrelated groups and have these get together and agree upon a uniform-size sheet, and then to get the related industries within the group to agree to use that size. This would be a material help for filing purposes.

Summed up, catalogues, etc., should follow up magazine advertising and should contain nothing but honest, solid information, presented in a clear, neat manner, in the most boiled-down tabloid form. Letters should be clear and likewise of the greatest brevity.

If these suggestions are followed the architect, who is mostly inclined to be fair, progressive, and eager to learn, will give all of this information more attention than he has in the past. At all events, it cannot but result in a closer co-operation between the architect and manufacturer, and a much nearer 100-per-cent return to the latter—all of which can be accomplished through the exercise of greater care, discrimination, a more liberal use of gray matter, and less paper.

Announcements

THE SOCIETY OF LITTLE GARDENS

The Society of Little Gardens, of Philadelphia, announces a competition in the design of a garden treatment for the typical suburban "back yard." The purpose of the competition is to procure one or more designs which may be presented to the public to stimulate and guide the development of the out-of-doors space of the average American dwelling-house and to bring it clearly within the meaning of the word "home," now too generally limited to the space within four walls.

Eligibility.—All students of the garden problem are invited to submit designs under the terms of this programme; this invitation comprehending professional garden designers, draftsmen, and students in schools of architecture and landscape design. Nor is the amateur garden lover excluded, provided only that his ideas are presented in the technical form prescribed.

Write for information to Mrs. Charles Davis Clark, president, 2215 Spruce Street, Philadelphia.

Indianapolis architects are planning to take a large part in the Indianapolis Industrial Exposition, to be held October 10 to 15 at the Indiana State Fair Grounds under the auspices of the Indianapolis Chamber of Commerce.

Space has already been taken by more than four hundred of the seven hundred and eighty-one different lines of manufacturing in Indianapolis. One of the unique features of the exposition will be that the huge Manufacturers Building will be laid out in replica of the retail district of Indianapolis, with the world-famed Soldiers and Sailors Monument towering in the centre of the network of streets named after those in down-town Indianapolis.

Edward F. Fanning, 4 East 39th Street, announces his removal on August 1st to 522 Fifth Avenue, New York

City, Guaranty Trust Building, where he will continue his general practice of architecture.

MOVIES TO SHOW YOU HOW TO SAVE COAL.—The power of the motion-picture screen has been harnessed to the task of impressing upon American citizens the need of conserving coal, says Mr. C. J. Stover, secretary Manufacture of Pipe and Boiler Coverings.

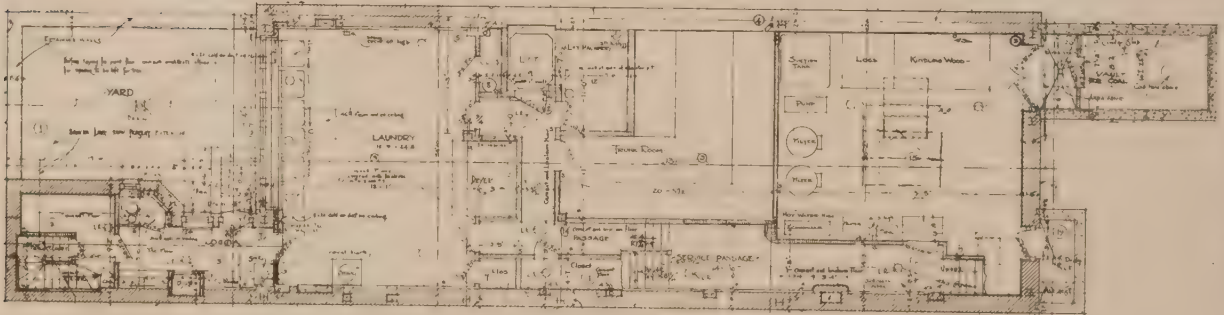
A one-reel film entitled "A Dollar Saved Is a Dollar Earned," which picturizes how the coal-bill can be cut down in the average home by the insulation of boiler and pipes, has been presented to the United States Bureau of Mines library of educational films, and will be circulated by the bureau throughout the country. In addition to this circulation, prints of the films will be available to distributing agencies, such as the Red Cross, Y. M. C. A., etc., which loan education films to churches, schools, and lodges without rental charge, the same as Carnegie Library loans books free.

The picture was produced under the auspices of the Pipe and Boiler Manufacturers of the United States by the Rothacker Film Company, of Chicago, which has made a number of the films now in the bureau's library.

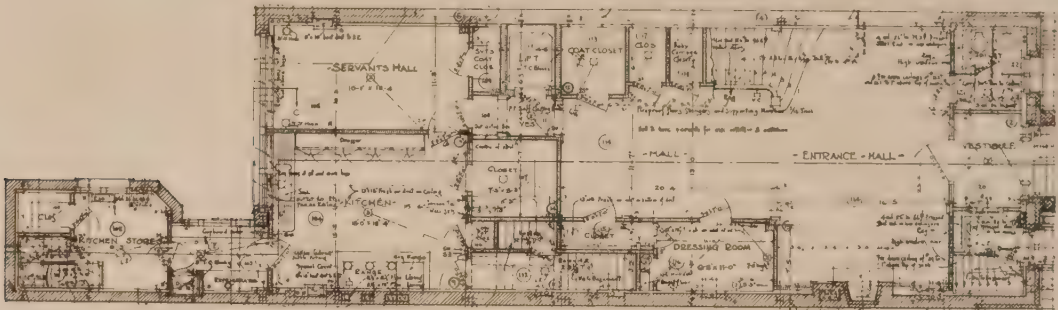
Architects will be glad to receive the interesting and valuable new service literature of the Indiana Limestone Quarryman's Association, showing typical details for enclosing walls built of Indiana limestone ashlar with hollow-tile backing. The two Series "D," Details and Data Sheets, and the four Series "E" Plates will compose the first mailing which will go forward to architects. The Series "D" Sheets will be devoted entirely to showing details of construction and data connected with the proper detailing of cut stone, and showing new ways of using it in connection with modern building construction. The Series "E" Plates are intended to illustrate good examples of recent Indiana limestone work of all types in a convenient form for separate classified filing.



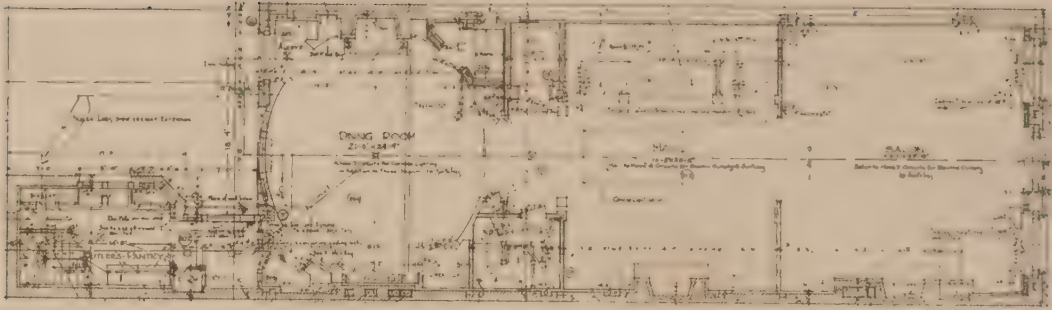
RESIDENCE, EDWIN JAMESON, 9 EAST 69TH STREET, NEW YORK.



BASEMENT PLAN.

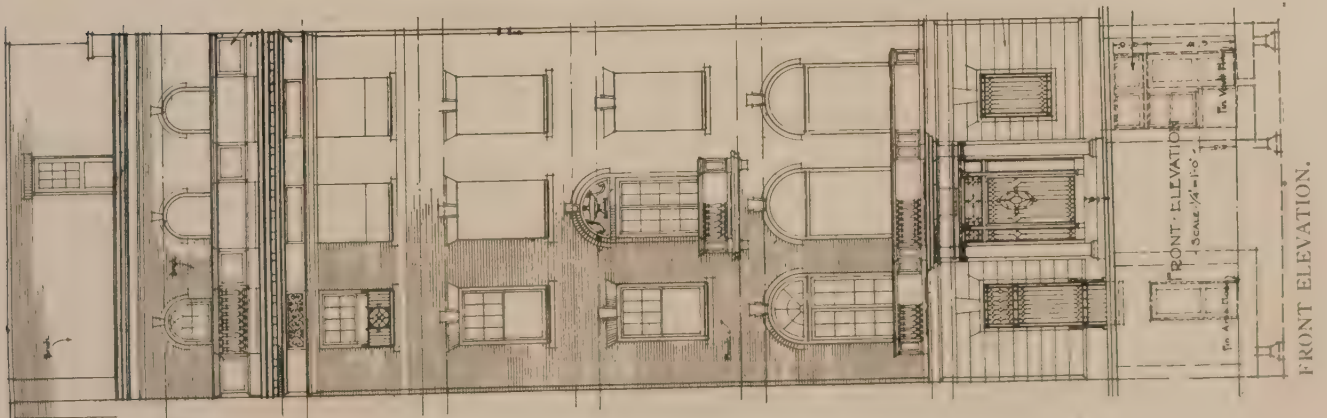


FIRST-FLOOR PLAN.

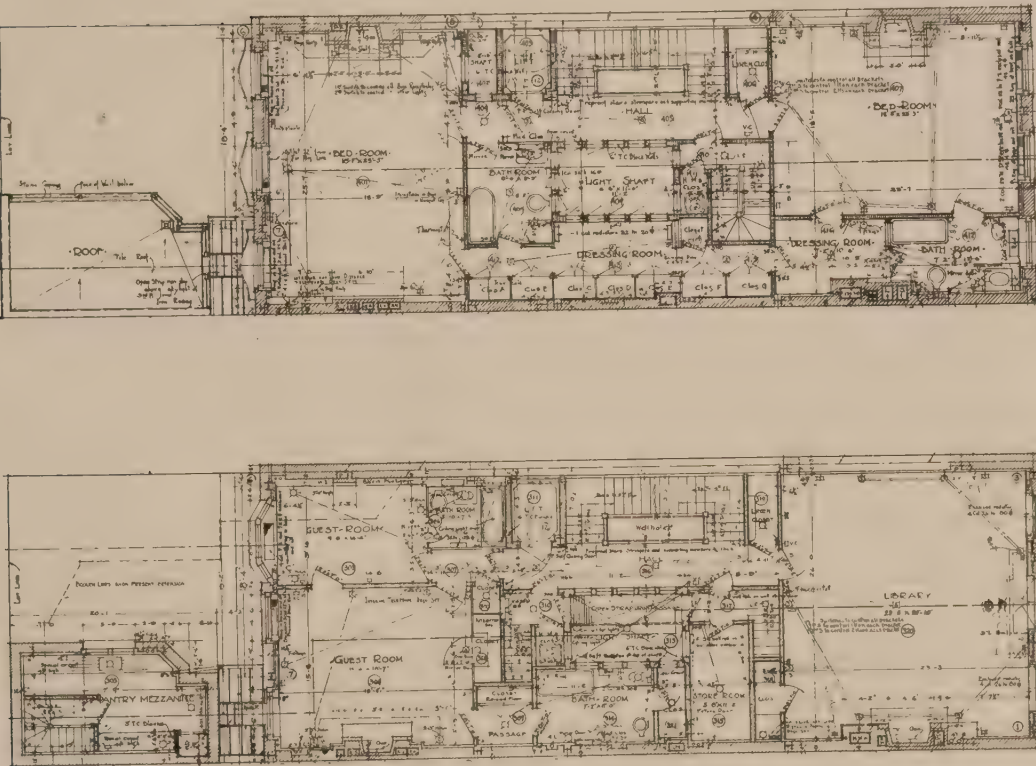


SECOND-FLOOR PLAN.

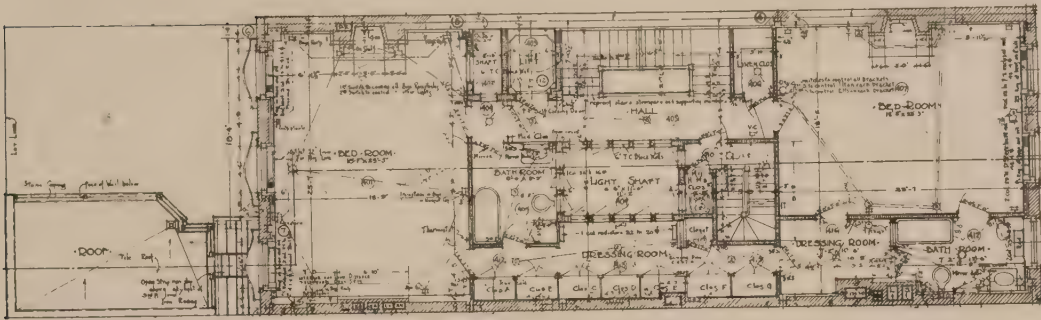
Grosvenor Atterbury, Architect.



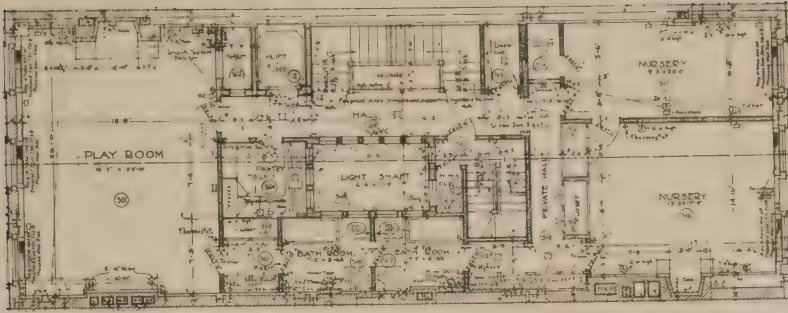
FRONT ELEVATION.



THIRD-FLOOR PLAN.



FOURTH-FLOOR PLAN.



FIFTH-FLOOR PLAN.

Liberty Memorial Competition, Kansas City, Mo.

Edward Buehler Delk and Armstrong & De Gelleke, Associate Architects

One of the Prize Designs

POSTERITY owes to those who courageously and loyally gave their lives to a great national cause some symbol of honor and gratitude commensurate with the services rendered. The World War called the young manhood from our homes, not to predatory conquest or defensive war, but for the conserving of those political principles and ideals which make for justice, freedom, and the democratic control of states. The valor of our soldiers was inspired by the hope that a righteous peace would be secured for the world, and that a new internationalism would emerge from the welter of international aggression and strife.

To the end that the people of Kansas City might give expression to their appreciation of such service and to such a hope as filled the hearts of our young adventurers on the high seas and battle-fields of Europe, her citizens projected an architectural memorial which would typify in a great and noble way the heroism, loyalty, and sacrifice of her sons.

In response to the invitation of the association having in charge the erection and execution of such a memorial, we offer in the same lofty spirit a scheme of structures and a memorial which we hope will meet the high ideals and generous purpose of the citizens of Kansas City. The admirable programme is a challenge to the best in human brain and heart, and we offer the results of our study of the whole proposal and a deepening passion to realize the desire of those who formulated the purpose of a fitting memorial.

Our plan contemplates not only the memorial but looks forward to a great development of cultural and civic buildings correlated to our main structure. The three features of our plan for the section of the city selected as the site of the varied group of buildings are:

1. The memorial; its approaches and surroundings, and immediately related the memorial building for the use of the living.
2. A group to be devoted to cultural ends—Art—Literature, Music, Natural History, and Museums.
3. A group of civic buildings such as post-office, city hall, armory and stadium, and other necessary structures in the conduct of municipal life.

The main feature of our plan is to correlate the business section of the city with the residential and park system, placing in the high centre of the city's life a commanding memorial which will forever recall the business and social life of the city to those ideal ends the realization of which makes for righteous peace and joy in human society.

We have placed the memorial so that the visitor leaving the great railroad station will pause and stand in almost awe at the rising terraces, the soaring shaft, and the commanding figure of Peace, which rises out of the very stones of which it is a part.

The topographical nature of the country—a land of plains and abrupt mesas—called for the broadest and boldest of designs. We have ventured to transcribe in architectural forms the magnitude and spirit of the great mid-West. We confess to a desire to create an ideal expression of the ambitious West, and the men who have moulded its civilization.

From the beginning we have collaborated with James



View of site from the Union Station.

Earle Fraser, New York, sculptor; Jules Guerin, New York, mural painter; Edward H. Bennett, Chicago, landscape architect and city planner.

The memorial is approached by wide stretches of stops and terraces. The retaining-wall at the first level will be inscribed with the names of the heroic dead and symbolic figures. Abutting the upper square are buildings the roofs of which form flanking terraces. Trees and pools, with their accompanying shade and splash, are about the memorial, and in this quiet a repose will be induced that breeds the atmosphere of peace and meditation essential to the full enjoyment and impression which the memorial should create in the lives of the people.

The memorial is not the reproduction or adaptation of any other shaft. The spirit of this people deserves a new expression of its unique spirit of aspiration. Its threefold character is simplicity, greatness, and aspiration. It stands for the New World's hope of a noble peace which has grown up out of the earlier conflicts. It is to be built in honor of the dead, but it is to symbolize peace—the fruit of toil, justice, and love. The stages of the shaft carry sculptural suggestions of our three great wars—consummated by a strong symbol of a mighty peace in repose and conscious strength.

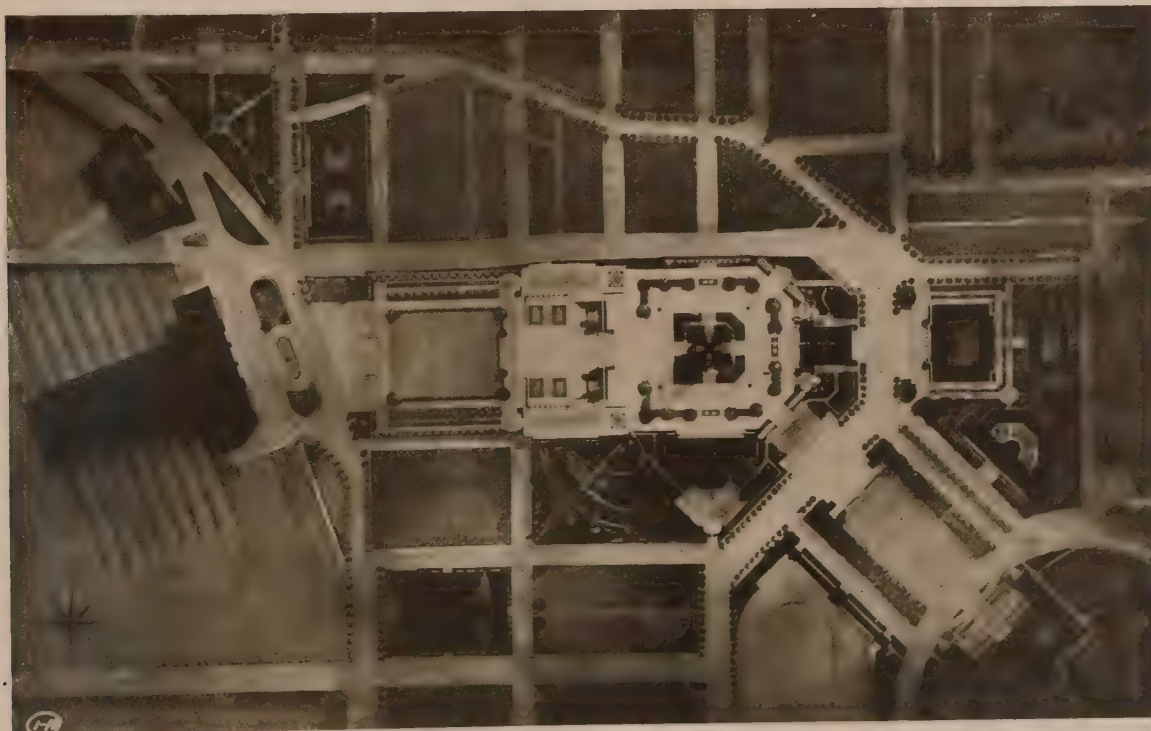
The shaft is 401 feet in height, each foot representing one of the honored men whose lives were given for the cause. Elevators will carry visitors to the balcony at the base of the figure. Bells will be hung and rung on patriotic occasions. A softly luminous gold star will shine at night for the joy of the Gold Star Mothers Association, whose sons now shine in a fairer sky than earth's.

The memorial building, just beyond the memorial, is a fitting architectural companion for those that returned, and those organizations that did such helpful work here and abroad. Here a great auditorium is to welcome all expressions of civic and patriotic life. Trophy-rooms, offices, committee-rooms, and all the practical accessories of a noble building are designed for utility as well as for beauty. A symbolic frieze in colored marbles affords the necessary warmth in such a composition on the exterior, while there has been provided great mural paintings in the interior.

From the high ground of the shaft vistas of the park and city stretch away to the east, north, and west. The contemplated cultural buildings are related to the neighboring park, and the civic buildings placed near the station, but as the heart and inspiration of all this life stands the glorification of an aspiring and enduring peace.



PERSPECTIVE.



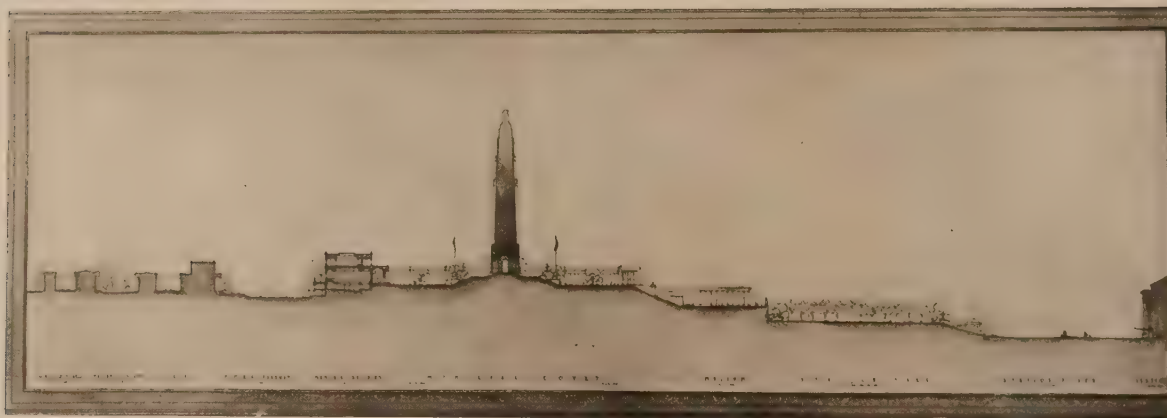
GENERAL PLAN.

Edward Buehler Delk and Armstrong & De Gelleke, Associate Architects.

LIBERTY MEMORIAL, KANSAS CITY, MO. ONE OF THE PRIZE DESIGNS.



PRINCIPAL ELEVATION OF LEGION BUILDING.



GENERAL SECTION.



PRINCIPAL ELEVATION OF MONUMENT.



DETAIL.

LIBERTY MEMORIAL, KANSAS CITY, MO. ONE OF THE PRIZE DESIGNS.

Edward Buehler Delk and Armstrong & De Gelleke, Associate Architects.

Howard Theatre, Atlanta, Ga.

Hentz, Reid & Adler, Architects

PERHAPS no more ideal location for a theatre could have been found in the city of Atlanta than that selected for the Howard Theatre. Located as it is on the most elevated portion of Peachtree Street, directly opposite the junction of Peachtree and Forsyth Streets, it forms a focal point in three directions. Despite the fact that it is only a two-story building it may be seen a considerable distance from all points of approach and can never be cut off from view by any future building operations.

The building has a frontage of ninety feet and six inches on Peachtree Street, and extends back two hundred and fifty-nine feet, which makes it one of the largest buildings in the entire South devoted almost entirely to the exhibition of the motion picture. There is an alley on the south side of the building, and the lot has quite a sharp grade toward the rear, which allows all of the exits on the main floor of the auditorium to be at grade level. The building is of strictly fireproof construction, and has twenty-seven exits. The columns, girders, beams, floor and roof slabs are of reinforced concrete, while the roof trusses and girders supporting the gallery are of steel.

The exterior of the building is designed in the Italian Renaissance of the sixteenth century, and the interior follows both sixteenth and seventeenth century motifs, with a tendency toward the baroque in certain parts. The front on Peachtree Street is of buff Indiana limestone, finished smooth and laid up with joints one-eighth inch wide. The roof over the front portion is of red mission tile. The main entrance to the theatre is through an open loggia, with walls of Indiana limestone and a floor of Napoleon gray marble. From the loggia one enters the main lobby.

This lobby is a monumental room thirty feet wide and fifty feet long, with a vaulted ceiling thirty-one feet above the floor at its highest point. At the end of the main lobby is the grand staircase leading to the promenade and balcony levels. The walls of the lobby up to the level of the promenade floor are of artificial travertine stone, rusticated, with a base of black-and-gold marble. The walls above the level of the promenade floor have pilasters of artificial travertine stone and the intermediate wall surfaces of artificial Caen stone. The floor of the lobby is laid in alternate squares of Belgian black marble and Napoleon gray marble. The ceiling vault is painted blue, and studded with silver and gold stars. The grand staircase has steps of Napoleon gray marble; newels, rails, and balusters are of Breche violette marble. The columns at the head of the grand staircase and at the entrance to the promenade are of artificial Breche violette marble.

The promenade at the mezzanine floor level is an elliptical room fifty-two feet on its major axis and thirty-eight feet on its minor axis, with an open well in the centre giving a view of the promenade from the main auditorium floor below. The walls of the promenade have Ionic pilasters and engaged Ionic columns of artificial Cipolino marble. The balustrade around the well is of artificial Breche violette marble. The ceiling of the promenade is domed and covered with cartouches and grotesques in low relief. It is painted yellow and then rubbed with silver, the yellow

tones showing through the silver. On the wall of the promenade, directly opposite the entrance from the grand staircase, is an eighteenth century Italian tempera painting of an architectural subject, the setting being designed as a part of the architectural treatment of the room. On either side of the promenade are the women's rest-room and the men's smoking-room, with lavatories adjoining. These rooms are designed in the seventeenth century English Renaissance, panelled to the ceiling with heavily ornamented cornices and wood mantels. The smoking-room is finished in dark oak, and the women's rest-room is finished in natural birch.

Particular attention has been paid to the lighting; the central dome has a concealed system of color lighting which consists of red, blue, and amber lights set four inches on centres around the perimeters of the inner and outer domes. The lights are controlled by the dimmers on the switchboard behind the proscenium and give an infinite variety of color changes. The lighting fixtures are from special designs; the lanterns over the boxes and the magnificent crystal chandelier suspended from the ceiling of the promenade are antiques.

The furniture throughout was selected by the architects. The painted benches around the promenade are Italian antiques from the eighteenth century. As a part of the equipment of the building, a three-manual organ with sixty-five stops is installed in the two chambers over the proscenium boxes, with the console located in the orchestra pit.

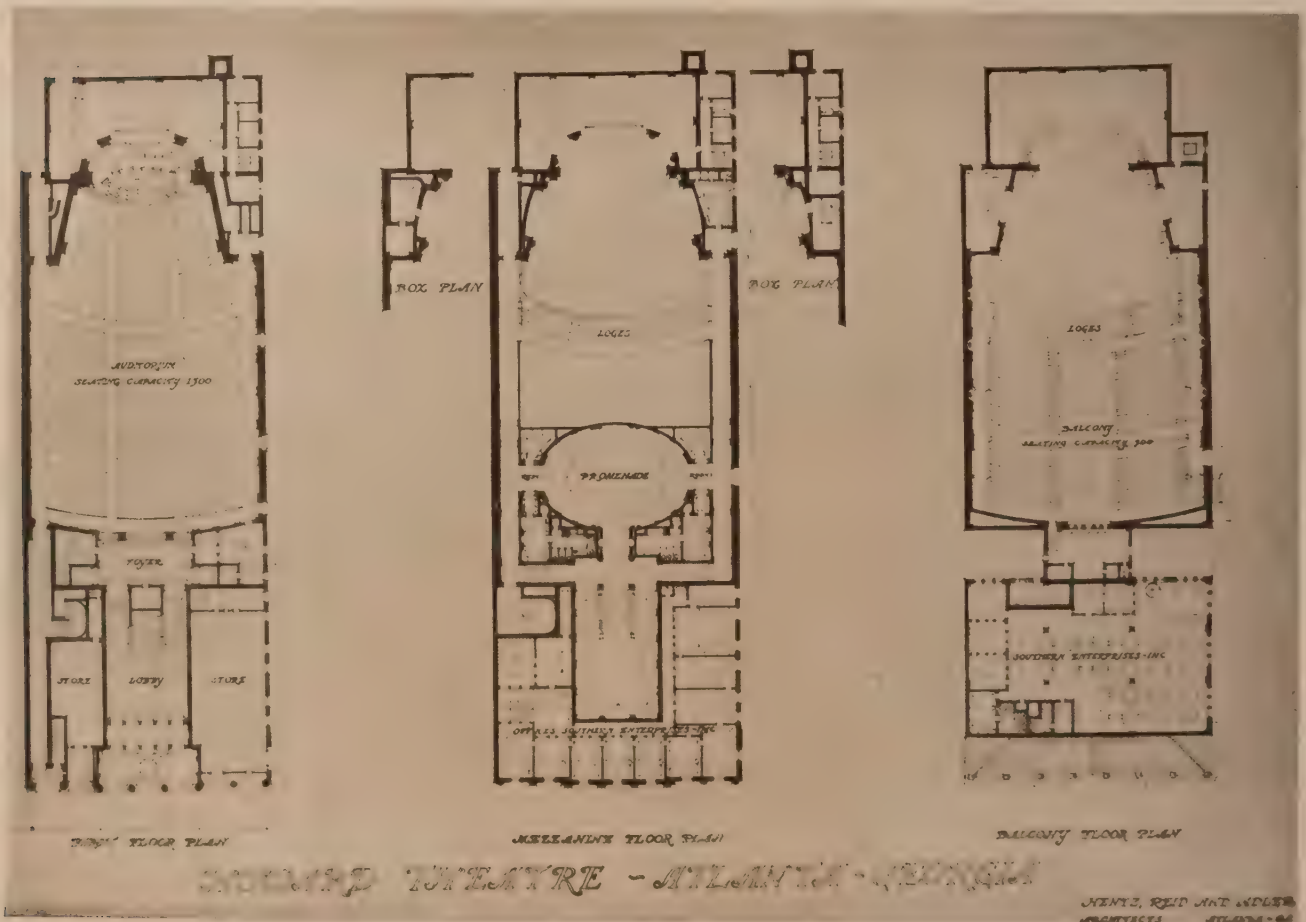
The building has a complete heating and ventilating system, fitted with an air-washer. The main intake and air-washer are located in the penthouse on the roof over the auditorium. The equipment consists of four one-hundred-and-twenty-inch disk-type fans and two ninety-six-inch disk-type fans. In winter the air is forced through the centre section of the air-washer, using two ninety-six-inch fans, blowing the air across the heating coil and into the auditorium through the sounding-board. In summer all six fans are operated, two one-hundred-and-twenty-inch fans and two ninety-six-inch fans forcing air through the sounding-board, and two ninety-six-inch fans blowing down through the coffered segments of the dome. The air is exhausted from the auditorium by a system of mushroom ventilators which are located on the floors of the auditorium and balcony. They are connected with one eighty-four-inch fan located on the roof over the front portion of the building and two sixty-inch fans located under the picture booth in the rear of balcony. The ventilating system for the men's and women's lavatories, the men's smoking-room, and the women's rest-room are on an entirely separate system. The stage is heated by pipe coils, and the entrances, stores, and offices on the second and third floors of the front portion of the building are heated by direct radiation, using a well-known modulation system. The boilers, two in number, are located in the basement under the stage and are of the down-draft fire-box type, one 12,000 square feet and the other 14,000 square feet.

The building is owned jointly by Mr. Troup Howard and the Southern Enterprises, Inc., of Atlanta, Ga.



LONGITUDINAL SECTION.

The main auditorium is entered on either side of the grand staircase. A small foyer with coat-room and offices on either side separate the auditorium from the main lobby. The main auditorium has a seating capacity of fifteen hundred and the balcony seats nine hundred. The auditorium is of a generally ornate character, the ornament being massed around the proscenium and in the central dome. The boxes are two in number, located on either side of the proscenium with a grouping of pilasters and engaged columns on either side which support allegorical figures. The entire motif is surmounted by a large cartouche which is backed by an open grille work that communicates with the organ-chambers located above the boxes. The side walls up to the entablature and the rear wall up to the ceiling under the balcony are of artificial travertine stone with a base of Napoleon gray marble. The general color scheme of the auditorium is green, purple, and gold, with a strong blue note in the sounding-board. The entire scheme is relieved by touches of pure white in the cartouches and in the centre dome.





DETAIL OF PROSCENIUM

The proscenium arch has for its central decoration a large cartouche supported and flanked on either side by allegorical figures. A permanent stage setting surrounds the screen and continues the architectural treatment of the auditorium. The curtain of the proscenium, the hangings of the boxes, and the upholstery of the rails are cloth of gold. The curtains of the permanent stage setting are of purple velvet.



REST ROOM.



MEN'S SMOKING-ROOM.

HOWARD THEATRE, ATLANTA, GA.
Hentz, Reid & Adler, Architects.

Heat Retardants in Relation to Architecture

By John E. Starr

IN these times of high coal prices it is well to pay increased attention to heating costs and methods of keeping them down.

In the Northwest, in such places as Minnesota, Dakota, and Saskatchewan, the necessities of cold weather, long continued, have for years inclined the mind to follow this subject closely, and there are those who make a specialty of household heat conservation.

If our climate were continuously at a temperature of about 72° or 74° F. and the winds did not blow, and were all human beings honest, and if privacy was not sought, we should need no walls to our dwellings. We build for privacy, safety of property and life, and protection against the moving air, but the main reason for the existence of walls lies in the desire to preserve the comfort and safety of persons from the climatic changes of heat. Hence a study of heat transfers increases in importance as the cost of producing heat increases.

Heat once produced flows from a warm body to a cold one with a velocity directly in proportion to the "heat head" or difference of mean temperature on one side and the mean temperature of the other. If the temperature in a room be 72° and of the outside 20°, the heat head is said to be 52°. It will flow from 72° to 10° at a heat head of 62°, or 19½ per cent faster. A wall is placed between the high and the low temperature as a retardant of the rate of heat flow. It can never act as a perfect stop of flow, but means can be taken to retard the flow, and therefore the cost of producing heat to a point where the saving in cost of supplying the heat and the fixed charge on the retardant structure will be somewhere near equal.

The structure to retard heat that is included in a simple partition to exclude moving air and for reasons of safety of property and privacy of person is called "insulation" (meaning, of course, heat insulation), and the effort of the architect should be to produce an economic balance between the cost of insulation and the cost of producing heat.

It is not difficult to establish some of the elements of the problem. The main averages as to the distribution of load are easily ascertained, as the factors are pretty fairly well known. A figure of say 72° or 74° may be taken as the datum for inside temperature, and as this factor is fixed, the more varying factor of outside temperature is available, and of record on the average. The government of the United States through the Weather Bureau has for years kept a record of mean monthly temperature, and with a fixed inside required temperature for a datum, it follows that the load must vary with the variations of the outside factor, and the load will be on the average in proportion to the mean monthly temperature. By subtracting from (say) 72° the mean monthly temperature of each month of the cold season we arrive at the distribution of the load for the season by months on the average. The mean monthly temperatures for the latitude of New York for nearly fifty years have been as follows: October 56°, November 46°, December 36°, January 32°, February 32°, March 37°, April 48° (see Plate I). The use of fuel is represented on Plate II. Subtracting the mean monthly temperature figures from 72 and arranging a curve expressed in percentage of the whole use of heat for the season, we

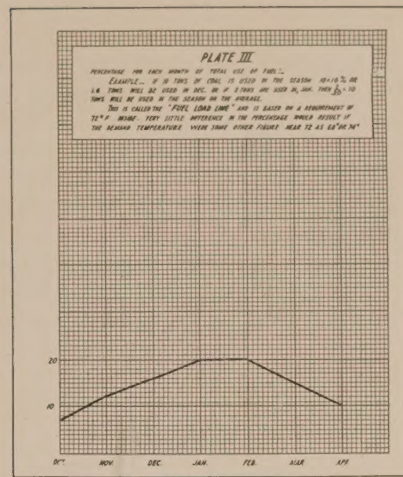
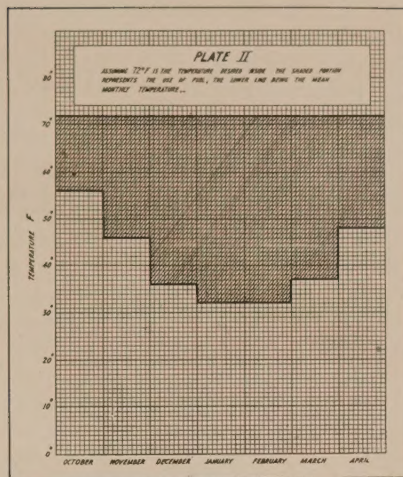
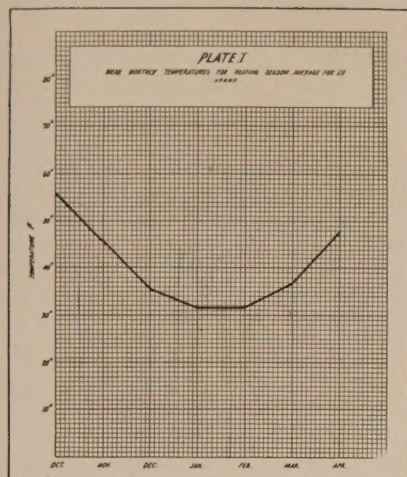
arrive at the results shown in Plate III. It is a fact that the percentage of use of coal for the entire season is very close to the above per cent of mean difference between 72 and the monthly mean. So close is it, in fact, that it may be commercially relied upon. To show how commercially the mean difference between 72 and the mean monthly temperature may be relied upon, a curve was actually plotted in Baltimore, where a goodly sized central steam plant had been in existence for some years. The average of the mean monthly temperatures for some years was plotted and the income per degree of difference established. An unusually cold December came on, and by applying the monthly mean as shown to December 27, the income for the month was predicted within one-quarter of one per cent of accuracy. The few days lacking made no appreciable difference in the monthly averages, as it turned out.

While the distribution of the load throughout the year may thus be accurately predicted on the average, it is impossible to figure in advance the total amount that will be used in any one year. For example, in the unusually cold season of 1918-19 (the coldest in forty-seven years), the demand for heat as shown by the above method was found to be 23 per cent more than it had been in the average of forty-seven years. Everybody, including the government, the railroads, and the coal barons, was blamed by a shivering populace for a shortage of coal. As it happened, no one was to blame but Dame Nature, for no one could foretell that the demand would be 23 per cent more than the average, and our coal-producers and railroads were only equipped as to production and distribution for the average; and forty-seven years seems a period long enough to judge by! It would not pay to add 23 per cent to coal-breakers, coal storage, coal-cars, etc., to provide for an event that might not occur in another forty-seven years. Local consumers would never bear the burden of insurance by providing local store to cover such a remote eventuality. So it is probable that if the season 1918-19 is ever repeated, we shall have to shiver as before.

It is, perhaps, useless to try to educate the small heat-producer, such as a householder or his servants, to a more economical method of originally producing heat. It is probable that less than 50 per cent of the heat that should be gotten from the combustion of coal or wood is made available by the average householder, through non-burned fuel (coal in the ash), imperfect admixture of the elements of ordinary combustion (carbon and oxygen), waste hot gases, improper admission of cold air, etc. Of the 13,000 or 14,000 B. t. u.'s* of heat that result from just the right union of combustibles, a large user with the most complete appliances for producing such a combination and testing his results

* NOTE.—A B. t. u. (British thermal unit) is in this country the legal and ordinary unit of the amount of heat necessary to add to one pound of water to raise it 1° F. in temperature, or the amount of heat necessary to take out of 1 pound of water to lower it 1° F. Thus, 1 pound of water 1° is 1 B. t. u. One pound of water raised or lowered 10° takes 10 B. t. u.; 10 pounds of water raised or lowered 1° adds or subtracts 10 B. t. u.; 20 pounds of water raised or lowered 2° requires addition or subtraction of 40 B. t. u.; 10 pounds of water changed 5° takes 50 B. t. u., and so on.

In many countries, notably in France and Germany and in the scientific world generally, a so-called "calorie" is taken as a unit, or 1 kilogram of water 1° Centigrade. A calorie represents about four times as much heat in quantity as a B. t. u., but a calorie per kg. is 1.8 times a B. t. u. per pound, as a Centigrade degree is nine-fifths of a Fahrenheit degree.



considers himself fortunate if he puts 73 per cent, or 9,500 to 10,250 B. t. u. s, to actual final work, and the small user, with his comparatively incomplete apparatus, cannot be expected to do anywhere near so well. So little can be expected as to the average economic gain from improved apparatus and method. But admitting that the loss in this direction is and will continue to be large, it is quite possible to save a considerable portion of the heat once (admittedly uneconomically) produced, that would otherwise be lost, as far as human benefit is concerned.

The ordinary brick wall, 12 inches thick, plastered inside, will transmit heat from the warm inside to the cold outside at the rate of about $7\frac{1}{2}$ B. t. u. per degree of difference per square feet per day.

The mean of the outside for January as shown is 32° , or a difference of 40° . If an average of 72° inside is required:

$$40 \times 7.5 = 300 \text{ B. t. u. per day.}$$

Say, the house exposes 2,000 square feet:

$$2,000 \times 300 = 600,000 \text{ B. t. u.}$$

The average housekeeper probably does not realize over 7,000 B. t. u. from a pound of coal.

$$\frac{600,000}{7000} = 86 \text{ pounds of coal, or for 30 days, 2,580 pounds in January or February.}$$

As is shown on Plate III, the coldest month on the average is about 20 per cent of the whole season, so $\frac{2580}{.20} =$

$$12,900 \text{ pounds or } 6 \frac{45}{100} \text{ tons for the season for this item only.}$$

Now, an inch of any good insulating board will only allow about 6.4 B. t. u. to pass per square foot per degree of difference.

The reciprocal of the sum of the reciprocals of an insulation closely approximates the conduction of the two combined.

$$\frac{1}{7.1} + \frac{1}{6.4} = .1335 + .156 = .2895, \text{ and the reciprocal of } .2895 \text{ is } 3.6 \text{ B. t. u., which is the amount of heat that a 12-inch brick wall with a facing of a good insulating board, plastered, will allow to pass.}$$

$$\frac{3.6 \text{ B. t. u.} \times 2000 \text{ square feet} \times 40^{\circ} \text{ difference}}{7000} = 41.14 \text{ pounds per day.}$$

$$41.4 \times 30 = 1234.2 \text{ pounds coal per month.}$$

$$\frac{1234.2}{.2} = 6,171 \text{ pounds for the season.}$$

$$\frac{6171}{2000} = 3.0855 \text{ tons for the season, showing that the}$$

insulation has reduced the coal bill on the supposed building as to heat transfer alone from 6.45 tons to 3.0855 tons, or with coal at \$15 per ton the saving would be \$46.32, or the interest at 6 per cent on \$772, which is more than the cost of our 2,000 feet of insulation.

In addition to the actual saving in money as shown, there is an additional value that cannot be expressed in dollars, which includes the additional comfort at all times in the cold season, the security against "peaks" of extreme cold, and the comfort of a cooler house in the warm season.

Much can be done also in the way of protection against the sun's rays. Heat is warded off, especially at high temperatures, or is "radiated" by color alone. A test was made on a roof of a building when the thermometer showed 90° in the shade. When the sun was shining a thermometer on a black roof showed 130° F. By simply rolling the thermometer a few inches so that the bulb came on the top of a white piece of paper laid on the roof it promptly dropped to 116° , showing a drop in the heat head of 14° , and, as shown above, the heat head is the governing factor; and assuming 90° was the inside temperature desired, the same as the outside, the saving shown by the white surface was as $130-90$ is to $116-90$, or 20 to 13, or nearly 2 to 1, while the sun was shining, as to all surfaces exposed to the sun's rays. In one case a combination of roof insulation and color made all the difference between the tenability and the untenability of an upper story for office purposes in a large factory, and gave the use of many square feet of desirable office space, which would otherwise have been useless for that purpose.

Something can be done with lighting in connection with the effect of heat. Window surface varies greatly, but may average about 26 per cent in dwellings with all outside exposure, and is therefore a large item. A single-pane window will transmit about 24 B. t. u. per degree of difference per day, while a double window will transmit only about 11.4 B. t. u. per day. Hence the window area will require the use of more coal if it is a single pane than if it were a double pane.

No account was taken of window area in the above example, but simple arithmetic shows that if 26 per cent of our supposed 2,000 square feet were window area, the coal consumption would average 9.457 tons for plain building and with single-pane windows, and only 5.8458 tons for insulated building and with double-pane windows. This is 4.6112 tons coal saved, which at \$15 per ton would make all told a saving of \$69.16 per year, or the interest on \$1,152.66 at 6 per cent, which would more than pay for the insulation and double paning of the windows.

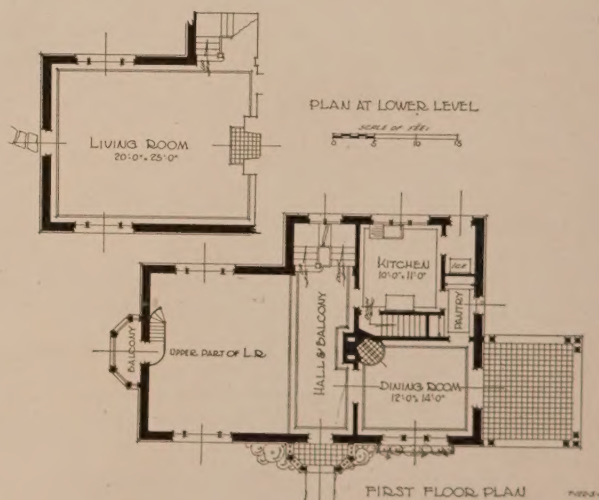
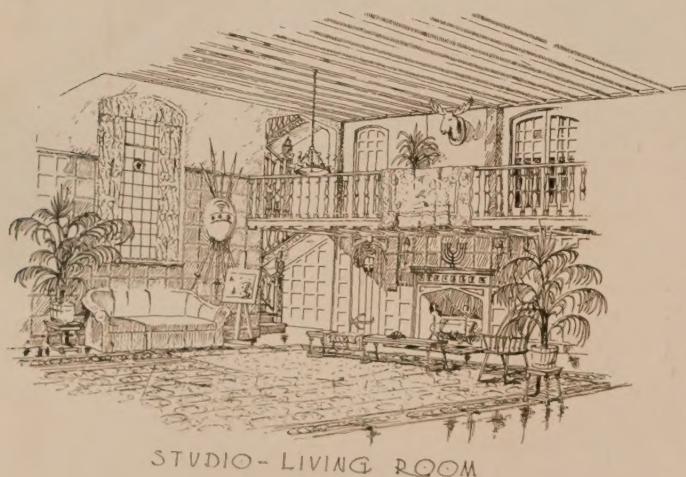
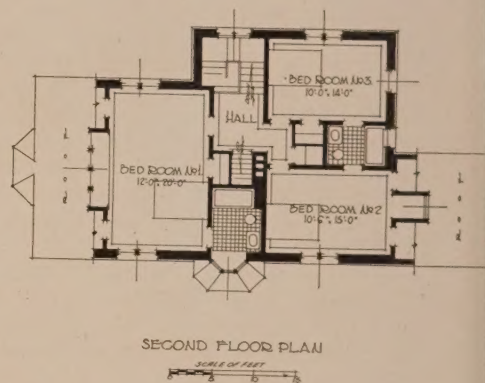
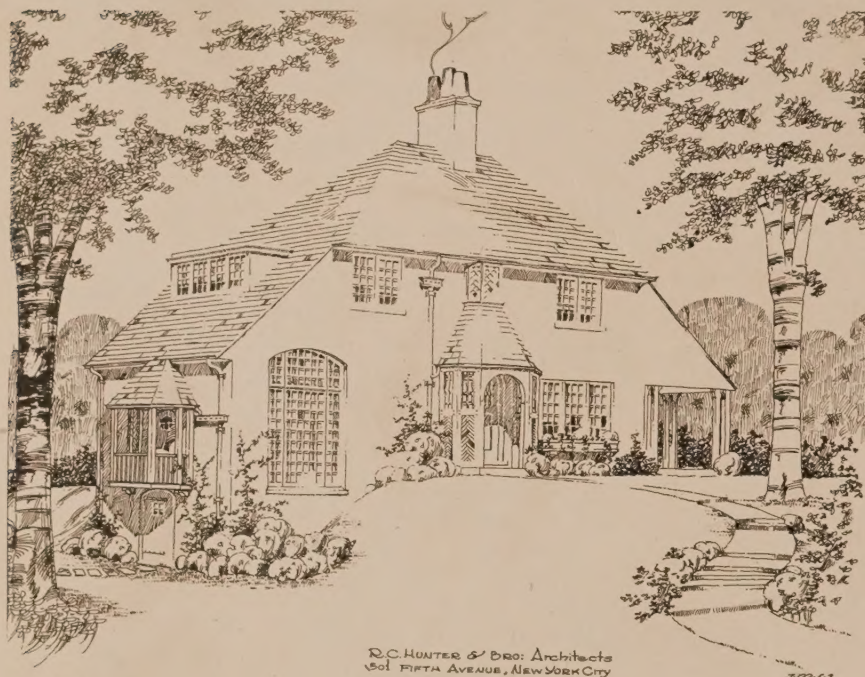
It may be said here that a 12-inch average brick wall and the usual inside finish is about equal to the usual

wooden wall, one layer of paper and lath and plaster inside finish, as far as heat transmission is concerned.

Much can be said of wind velocities and other matters affecting heat transfers, but the broad principles are indicated above.

These remarks are made from the standpoint of one who has spent his life in fighting the influx of heat into buildings, as in cold storage, and removing such heat as came in with the goods, but it would seem that the general principles are the same as in keeping down the efflux of heat.

The inevitable results of being obliged to take in heat or give it out for ventilating purposes have to be considered in both cases.



HOUSE AND PLANS, C. RUTLEDGE AGNEW, TENAFLY, N. J.

R. C. Hunter & Bro., Architects.



From the water-color drawing by Otto Faelton

James Gamble Rogers, Architect

THE HARKNESS MEMORIAL TOWER, HARKNESS MEMORIAL QUADRANGLE,
YALE UNIVERSITY